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THE ABC'S OF BEING A FAN:
AN OPERANT ANALYSIS OF SPORTS CONSUMPTION BEHAVIOR

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by

Sean Pradhan

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THE ABC'S OF BEING A FAN:

AN OPERANT ANALYSIS OF SPORTS CONSUMPTION BEHAVIOR

by

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ABSTRACT

THE ABC'S OF BEING A FAN:
AN OPERANT ANALYSIS OF SPORTS CONSUMPTION BEHAVIOR

by Sean Pradhan

In the last 30 years, behavioral psychologists have begun to systematically apply the principles of operant theory to the analysis of consumer behavior. Two behavioral approaches that have been successfully employed in consumer behavior analysis are the Behavioral Perspective Model (BPM; Foxall, 1990) and the Behavioral Ecology of Consumption (BEC; Rajala & Hantula, 2000). However, neither of these models has been used to analyze sports consumption behavior. One purpose of the present study was to integrate consumer behavior models with other theoretical approaches to the investigation of sports consumption behavior. A second purpose was to examine the effects of three antecedent events, displayed in the form of videos, in a sample of self-identified San Francisco Giants fans, who reported their level of team identification. We used a simple behavioral choice task in which participants could choose to view team-related stimuli of the Giants or other sports-related stimuli after each video clip. We hypothesized that the video clips would serve as *motivating operations* that would influence the incentive value of Giants-related stimuli and subsequent choices for these stimuli, but that the level of team identification would moderate this effect. Participants also reported their affect in terms of feelings of emotional valence, arousal, dominance, and state self-esteem after each clip. We hypothesized that highly identified fans would experience greater changes in affect after viewing the losing video than would moderately identified fans but that any changes in self-esteem across the antecedent video conditions would be relatively small

for both groups. Highly identified fans chose Giants-related stimuli significantly more often than did moderately identified fans. Across the two obtained levels of team identification, the winning video resulted in significantly more choices for Giants-related stimuli than did the losing video. Both groups showed consistent and statistically significant decreases in the three affect measures (emotional valence, arousal, dominance) in the losing versus the winning condition. To our knowledge, this study is the first: (a) to study sports consumption behavior from a behavior-analytic perspective, (b) to integrate behavioral approaches to the study of consumer behavior with other theoretical approaches, and (c) to assess the incentive value of team-related stimuli as a function of exposure to sports media. We propose that future studies of sports consumption behavior take an interdisciplinary, multi-method approach.

ACKNOWLEDGEMENTS

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Introduction

Why do humans desire to be part of groups? Obviously, there are many factors that contribute to the extent to which people seek out and participate in groups. One factor is that people tend to join groups as a means to fulfill themselves. In this context, fulfillment refers to satisfying a social requirement in order to satiate a specific need that lies within the self (Gewirth, 1998). Tajfel and Turner (1979) sought to explain the apparent necessity for people to associate themselves with a group. Their seminal work on group association produced what is now known as *social identity theory*. Social identity theory posits that people tend to construct an external projection of themselves known as their *social identity*. This identity is influenced by the groups that individuals associate themselves with. These group memberships can contribute to a person's self-esteem, basic pride, and, most significantly, feeling of belonging (Tajfel & Turner, 1979). Humans' general need to belong is often satisfied when they join or associate themselves with a group, which provides rules and norms for behavior and delivers consequences for following or violating these rules and norms. The need to belong with a group has been termed *group affiliation* and has been defined as the relationship, usually positive, through which an individual feels a sense of involvement and belonging with a social group (Byrne, 1961). Past research has often focused upon pre-assigned groups to which an individual may belong, such as those based on cultural, ethnic, or religious allegiances (e.g., Aboud, 1977; Beit-Hallahmi, 1979; Segall, 1976), or age-defined peer groups (e.g., Brown & Lohr, 1987; Brown, Mounts, Lamborn, & Steinberg, 1993). Prior examinations have also inspected membership in established groups, such as social organizations, and

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considered the particular motives behind joining such groups (e.g., Ashforth & Mael, 1989; Hogg & Terry, 2000).

Accordingly, the concept of group affiliation, particularly within the scope of allegiances displayed for a specific group, can be applied to loyalties held towards sports teams. In the realm of sports, social identities and group affiliations are reflected and maintained through associations with specific sports, leagues, and teams. These affiliations often occur as a byproduct of other familial and regional affiliations (Hunt, Bristol, & Bashaw, 1999; Jones, 1997; Kraszewski, 2008). For example, people tend to like teams that their friends and family members like and that are popular in the geographic region in which they live (of course, exceptions do occur). Being associated with a team and fulfilling group affiliation creates the term, *fan*, derived from the word *fanatic* (Shank & Beasley, 1998). As with other types of group affiliations, sports fans place various levels of physical, financial, and emotional investments in certain sports teams. These investments may pay off in terms of increases in self-esteem, feelings of belongingness, and social consequences. Fittingly, the concepts of Tajfel and Turner's (1979) social identity theory can not only be employed to explain some mechanisms of fan behavior, but also provide relevant examples of such behavior.

Group Affiliation in Sports: Team Identification

Considering the work by Tajfel and Turner (1979) and others (Aboud, 1977; Ashforth & Mael, 1989; Hogg & Terry, 2000), the reasons, or motives, for affiliating oneself with a team become relevant. To be exact, directly participating as a fan of a team poses a number of costs and benefits that may contribute to that individual's sense of self.

As such, the questions that arise in this matter are: Why be a fan? Why place some sort of emotional, temporal, and financial investment in a sports team? Fans cannot affect the outcome of the game, yet they allow their favorite teams to have dramatic effects on their cognition, affect, and behavior. The extent of these investments, or personal associations with a team, is known as *fan* or *team identification* and has been defined as the psychological connectedness that a fan feels towards a team (Wann & Polk, 2007). Team identification has three main levels, those being low, moderate, and high degrees of identification (Wann & Branscombe, 1990). Fans at the high end of the continuum tend to feel more attachment towards their team than do fans at the other end. Attachment may take many forms, including changes in emotional responses to wins/losses, time and money spent consuming media and products (e.g., paraphernalia), time spent thinking and talking about the sport and team, and so on. Thus, highly identified fans may be more likely to have their behavior, cognition, and emotion change as a result of their team's performance after a win or loss (Wann & Branscombe, 1990). For ease of exposition, hereafter all objects, events, paraphernalia, and so on that are associated with a specific sports team will be collectively termed *team-related stimuli* (TRS). Examples of TRS include, but are not limited to, clothing items and other paraphernalia, news stories, video and audio clips, game transmission, tickets to games, message boards, blogs, self-generated verbal behavior, and so on.

Team identification has been widely studied in the context of social outcomes. In particular, prior research has investigated the effects on various components of the self (e.g. the self-concept and -esteem; Branscombe & Wann, 1991) and emotional responses

towards the identified team's performance. Early work by Wann and Branscombe (1993) measured the degree of identification towards a team and classified fans into three general groups: low, moderate, and high identifiers. Wann and Branscombe (1993) found that, compared to the two other fan groups, highly identified fans tend to be more involved with their chosen team. In fact, they note that these fans tend to spend more time and money in focusing their attention upon their identified team. In a later study, Wann and Branscombe (1995) studied the influence of specific levels of team identification on attitudes and opinions about a team. They reported that highly identified fans tended to hold more subjective and positive opinions for their identified team. In addition, highly identified fans showed more in-group favoritism than did lower or moderately identified fans. In other words, it appears that highly identified fans may have clouded judgment with regards to describing their team in objective terms (i.e., they wear the proverbial "rose-colored glasses" with respect to their team).

The positive viewpoints of fans may occur, in part, to preserve a component of their self-concept by directing attention towards desirable aspects of the identified team, such as winning. In fact, in an earlier study, Branscombe and Wann (1991) note that stronger identification tends to promote feelings of belongingness and self-worth by means of a closer affiliation with the identified team. In addition, strong identification may even provide a safeguard from sorrow, or perhaps even isolation, resulting from team losses through the promotion of a community of "hardcore" supporters (Branscombe & Wann, 1991). As a result, motives to identify one's self with a team may relate to the need to affiliate with a group, which in turn may serve as a motivator to

promote team following (Wann, Royalty, & Rochelle, 2002) and, hence, sports consumption. Based on the studies reviewed thus far, the levels of team identification appear to play a role in how fans respond to their team's performance, which may have implications for their level of consumption of TRS.

Fan Self-Esteem

Enhanced collective group identity, aggression, and motivation to preserve one's own identity have often been reported as possible outcomes of various types of team performance (Dimmock & Grove, 2005; Wann, 2006). Murrell and Dietz (1992) found that stronger fan support of teams is influenced by a fan's positive self-esteem. To be specific, individuals are more likely to engage in associative behaviors with a team in order to reap the benefits of an enhanced perception of the self. Furthermore, these researchers have noted that the level of team identification may predict attitudinal support, such that more highly identified fans tend to preserve feelings of worth through their identified team (Murrell & Dietz, 1992). In addition, an examination by Wann, Royalty, and Roberts (2000) revealed that individuals are more likely to present themselves as fans of a certain team when their self-esteem is high. In the event that an individual may experience low self-esteem, it has been found that fans may not be as willing to reveal their fanship towards a specific team (Wann et al., 2000). However, it must be noted that more highly identified fans may show their team loyalty more openly regardless of whether their identified team wins or loses (Branscombe & Wann, 1991). Wann (1994) has also examined the relationship between self-esteem, particularly collective or group self-esteem, and team identification. As Wann noted, previous work

had merely focused on individual self-esteem rather than on the collective self-concept that team identification may involve. Through self-report measures, Wann found a positive correlation between collective self-esteem and scores on team identification. Thus, it appears that higher collective self-esteem and higher self-esteem may be more associated with higher team identification. As a result, higher levels of team identification may be more strongly related to overall fan self-esteem than actual team performance.

Researchers have shown that compared to less highly identified fans, highly identified fans tend to report higher self-esteem and more positive emotions following a win and display lower self-esteem and negative feelings after a loss (Bizman & Yinon, 2002). After a win, highly identified fans may watch replays of key moments in the game, read news articles about the game, and discuss the game with other fans (e.g., in person, on message boards or blogs). This type of celebratory behavior is called *basking in reflected glory* (BIRGing; Kwon, Trail, & Lee, 2008). Classic work on BIRGing conducted by Cialdini, Borden, Thorne, Walker, Freeman, and Sloan (1976) has provided the foundation for this construct. Cialdini et al. (1976) studied BIRGing through three field experiments in which they observed the support of students, through the display of sports paraphernalia for various university football teams. These students were observed to have a greater tendency to wear identifying apparel of the university following a win compared to after non-wins (i.e., losses or ties). Despite the fact that the participants did not contribute to the successful outcomes, the authors note that the participants actively sought to broadcast their support of the successful source as a means to bolster their public image. Given that support of a successful entity may affect observers' evaluations

of related objects, the mere association with the team's external success directly contributed to self-perceptions of personal, or internal, success. In a similar vein, Lee (1985) found that individuals displayed BIRGing and used the affiliative pronoun, *we*, to describe more successful team performances rather than unsuccessful performances, particularly when social identity was more salient. Given this, group members may simply BIRG and use personal associations through pronouns in displaying affiliation in order to enhance their self-esteem, as success is a desirable outcome for the self (Dietz-Uhler & Murrell, 1998; Lee, 1985). Additionally, Hirt, Zillman, Erickson, and Kennedy (1992) have noted that more strongly, or higher, identified fans may feel better about themselves following more successful outcomes compared to when the team fails. Specifically, Hirt et al. (1992) report that higher identified fans experience more significant changes in self-esteem following successful and unsuccessful performances, in comparison to mood state changes. Thus, in the present context, BIRGing can be seen as instrumental behavior that is motivated, in part, by a team's winning performance, which could increase the incentive value of TRS associated with a specific team. In contrast, after a loss, fans may avoid TRS and avoid watching replays, reading articles about the game, and spending time talking about the game as a means to avoid negative effects on the self, thereby preserving a component of the self-esteem. This type of behavior is called *cutting off reflected failure* (CORFing; Kwon et al., 2008). For some fans, CORFing may involve escape/avoidance of TRS, which indicates that the team's loss has decreased the incentive value of those stimuli or possibly made them aversive (even in the short term). However, BIRGing and CORFing may not occur in set patterns.

That is, the spectrum of team identification may contribute to these tendencies to engage in BIRGing and CORFing. As a result, team identification must be considered in evaluations of constructs of the self along with the concepts related to the behavior of fans.

Fan Behavior

Recently, Dhurup (2012) found that identification with a team is related to future behavioral intentions and an individual's globalized satisfaction. He surveyed university students, measuring their identification and support of various Premier Soccer League teams in South Africa. Overall, more highly identified fans were found to be more supportive of their team (that is, they were more likely to BIRG) than were less identified fans. These highly identified fans were also more likely to report the intention to attend games. CORFing was not associated with team identification; however, perceived failure was correlated with diminished future intentions to attend games as well as lower levels of satisfaction in fans across the levels of identification, more specifically those who engage in CORFing.

Considering the notions of BIRGing and CORFing as responses to both success and failure, respectively, the matter of perpetuated fan support, as well as disassociation, comes into play. Over the course of sport history, dedicated fans have often continued to support their teams in spite of failure (Campbell, Aiken, & Kent, 2004). For example, within the past decade, teams, such as the MLB's Chicago Cubs and the NBA's New York Knicks, wallow in mediocrity year after year, seasonally falling short of expectations. Nevertheless, teams such as these garner the continued support of millions

of fans across the globe. With this in mind, the dichotomy of basking in reflected glory and cutting off reflected failure must be extended.

Previous research has delved into the perpetuation of fan behavior rooted in the concepts known as *basking in spite of reflected failure* (BIRFing) and *cutting off reflected success* (CORSing). Research by Campbell and colleagues in 2004 reviewed literature on BIRGing and CORFing and expanded these constructs with BIRFing and CORSing through the use of relevant sport examples. The notion of BIRFing refers to the maintenance of support for others regardless of attributed success, whereas CORSing connotes the cutting off of ties, or disassociation, from an entity wherein success is perceived as negative (Campbell et al., 2004). Campbell et al. (2004) have suggested that the higher levels of fanship may direct individuals to engage in more supportive behaviors by BIRFing. These behaviors entail fan support reflected through appropriate consuming behaviors (e.g., purchasing of tickets, apparel, paraphernalia, etc.) even in the presence of unsuccessful outcomes with regards to one's identified team. Alternatively, the concept of CORSing is a conundrum in that individuals who perceive their team to have "sold out," per se, may even go as far to disassociate themselves from their identified team in the presence of new success (Campbell et al., 2004). The authors found that more highly identified fans are expected to engage in CORSing when the threat of greater failure or damaged self-concept becomes evident (Campbell et al., 2004).

Fans who engage in CORSing behaviors often perceive their allegiance to a team to be unique. For instance, when a team experiences massive performance upsurges, the team then becomes attractive for "bandwagon fans" (Burger & Walters, 2003). Campbell

et al. (2004) note that these former "fair-weather" fans are individuals who did not previously support or identify with a team during times of average performance and only began to do so in the presence of current success (winning). As a result, certain fans, specifically more highly identified fans, may engage in CORSing in order to preserve their individualism (Campbell et al., 2004). This phenomenon has been observed in many sports, as in the late 1980s and through the 1990s with the success and newfound popularity of the Denver Broncos, San Antonio Spurs, and Los Angeles Lakers who began to gain support after winning league championships. In these cases, particularly the Los Angeles Lakers, fans may have cut off reflected success due to a deviation from the traditional, or past, philosophies of winning as exhibited by these teams during their past championship runs. Again, in the case of the Los Angeles Lakers of the late 1980s and early 1990s, explicitly known as the *Showtime Lakers* (Pearlman, 2014), their ostentatious performances and gaudy play may have strayed away from the tenacity and technical forms of winning displayed in the past. Fittingly, Aiken, Campbell, and Park (2005) tested these notions through a survey of university students who were asked to indicate their level of support concerning NCAA men's basketball teams. The authors found evidence to support the notion that more highly identified fans would engage in higher levels of BIRFing; however, highly identified fans did not display higher levels of CORSing, as once expected.

In summary, game outcomes (wins or losses) can serve as motivational variables that may influence subsequent sports-related behavior and change the behavioral function of TRS. Simply put, wins may increase the incentive value of TRS, causing fans to

increase their consumption of these stimuli, whereas losses may decrease the incentive

value of TRS or, as previously stated, even change them to aversive stimuli. In both

cases, fans may reduce their consumption of TRS compared to their level of consumption

after a win. Of course, team performance is not the sole determinant of post-game

behavior (win or loss). Other factors play a role. One such factor may lie within a fan's

behavioral tendencies.

Sports Consumption

Previous research on team identification has analyzed sport demand as well as

residual preference factors. Such work has investigated how sport consumption may

interact with particular motives of fans (Wann, 1995). Consumption of TRS reflects a

fan's motivation to behave in ways that result in contact with events and objects, such as

apparel, memorabilia, tickets to events, and the like (Hur, Ko, & Valacich, 2007). These

behaviors may include making decisions to purchase, use, select, and dispose of

merchandise and services related to a sports team (Branscombe & Wann, 1991; Hur et

al., 2007; Trail & James, 2001). Buying tickets and team paraphernalia may satisfy, in

part, many underlying motives including the need for group affiliation. Trail and James

(2001) investigated motives for sport consumption in a sample of season ticket holders.

Naturally, this sample contained more highly identified fans, who generally tend to seek

out and find pleasure in their identified team through direct means, such as by attending

the sporting event itself as opposed to watching it on television or following the game

online. The researchers found that these fans were motivated to seek out team products

due to their need for achievement, escape from reality, social interaction, and self-actualization.

Despite the progress made by researchers in understanding the self-reported motives and behaviors of sports fans with respect to consumption of TRS, prior research has not fully examined behavior in a context in which variables that might affect the reinforcing value of TRS were directly manipulated. Rather, the reinforcing value of TRS is often inferred from questionnaires. Although such data are useful, self-reported data obtained via questionnaires are sometimes far removed from the actual behaviors of interest. Following the methodological tradition of behavior analysis (e.g., DiClemente & Hantula, 2003a), the direct manipulation of variables that are believed to influence sports consumption behavior and direct measurement of that behavior may reveal additional details of this behavior in context. As an example of an experimental study on the effects of TRS, Potter and Keene (2012) examined the role of team identification in moderating the physiological responses after viewing TRS, which were video clips of coaches who left the fans' identified team in favor of another team. Compared to less highly identified fans, highly identified fans showed more potent levels of negative arousal after viewing the clip. Although these responses were physiological and the researchers did not directly measure the reinforcing value of TRS, the positive and negative components of arousal may be related to the appetitive/aversive value (Dickinson & Dearing, 1979) of TRS. This study used the kind of direct manipulation and measurement of consumer responses that may benefit the study of sports consumption.

Behavioral Approaches to Consumer Behavior

Although previous researchers of fan behavior and sports consumption have found orderly results with respect to variables associated with changes in the behavior, such as physiology, cognition, and affect, of sports fans, prominent studies of fan behavior have not incorporated concepts from the field of behavior analysis (e.g., Dhurup, 2012; Hur et al., 2007; Wann, 1995). This is not surprising given that behavior analyses of consumer behavior is still quite young and has not yet focused on sports consumption. Nevertheless, behavior-analytic approaches to consumer behavior may have much to offer to investigations and conceptualizations of sports consumption and other fan behaviors. One obvious reason is that sports consumption involves operant (instrumental) behavior that results in approach or escape/avoidance tendencies with respect to TRS. In this sense, TRS can be seen as incentives, or commodities, which fluctuate in value and availability depending on multiple, and possibly interacting, internal (e.g., team identification) and external (e.g., wins/losses) variables. Behavioral approaches to consumer behavior (e.g., studies of choice, matching, behavioral economics) have yielded powerful conceptual and methodological tools for the study of consumer behavior (DiClemente & Hantula, 2003a; Hantula & Wells, 2010). That said, any behavioral analysis of sports consumption might benefit from incorporating validated concepts and findings from the non-behavioral literature, in which the reader may find useful data on orderly relationships among many types of variables that relate to fan behavior. In short, the current study seeks a pragmatic integration of behavioral and non-

behavioral concepts to inform an interdisciplinary approach to the study of sports

consumption and other fan behaviors (and consumer behavior, in general).

From a behavior-analytic view, operant behavior occurs as one part of an

interrelationship among variables dubbed the *three-term contingency* of antecedent,

behavior, and consequence (or the "ABCs of operant conditioning"). Operant behaviors

are instrumental in the sense that they serve some purpose or satisfy a particular need

(e.g., physical, social, or emotional). That is, they are influenced by their consequences,

which change in value due to the influence of motivational variables. To speak in

everyday terms, operant behaviors help us achieve specific goals in a given context.

Behavior analysts refer to behaviors that are influenced by similar consequences as

members of the same operant *functional response class*. As an example, behaviors that

result in reading a blog post, regardless of the method with which that blog post was

accessed (e.g., smartphone, tablet, desktop, laptop), would be considered members of the

same functional response class because they all served the same behavioral function (i.e.,

gained access to the blog post). With respect to sports consumption, operant behaviors

may involve, for instance, those that lead to purchasing tickets to a game, choosing which

jersey to buy at a game, or choosing to attend a game or watch it at home. Antecedents

include events that occur before the start of the behavior (or behavior chain) and

influence the probability that members of the relevant operant response class will occur.

Behavior analysts have studied two main classes of antecedents: discriminative stimuli

(S^Ds) and motivating operations (MOs).

S^Ds signal the availability (probability) of consequences (reinforcers or punishers) related to that class of behaviors. In everyday language, they guide our behavior by telling us what consequences (e.g., incentives) might occur if we perform in ways that meet the requirements of a given context. For instance, a fan may regularly purchase a certain type of beer when s/he watches their favorite team's game on television. When at the grocery store, the person may see that their preferred brand of beer is sold out, but that there are multiple 6-packs of another, similar, brand. The absence of the most highly preferred brand is termed an S-delta, S^Δ or *S-*, because this stimulus signals that this brand is unavailable. The presence of the multiple 6-packs of the other, similar brand would be called an S^D because it signaled the availability of these beers if the proper behaviors are performed (e.g., picking up the beer, showing one's drivers license, giving money to the cashier). Note that in terms of behavioral economics, the latter brand would be considered a *substitute* for the first. As another example, a headline about one's team's win on one's favorite blog would serve as an S^D for reading the blog post because it indicates that the story is available. Note that it is assumed that the stimulus is signaling the availability of an *effective* consequence. A headline that has nothing to do with a topic of interest would not serve as an S^D. Discriminative stimuli can provide vital information to the person and guide appropriate behaviors (Michael, 1982). S^Ds influence the frequency of performed behaviors, and their function depends on the individual's learning history.

With respect to operant consequences, stimuli/events/objects in the environment may take on appetitive (e.g., described as pleasant, desirable, satisfying) or aversive

aspects (e.g., described as unpleasant, discomforting, undesirable; Mirenowicz & Schultz, 1996). Such stimuli may have unconditioned (unlearned) effects or may acquire their effects via conditioning (learned). Unconditioned consequences do not require a learning history to obtain their behavioral effects, whereas conditioned consequences are previously neutral stimuli that acquire their behavioral function as a result of a learning history. Examples of the former are food (in general), water, sexual stimulation (in general), and so on. Examples of the latter are merchandise of one's favorite team, video highlights, news stories about wins, and so on. Note that unconditioned consequences directly relate to biological needs or processes, while conditioned consequences are arbitrary and differ widely across individuals due to our peculiar life circumstances.

Consequences often vary in terms of their function. That is, consequences may be reinforcing, increasing the likelihood of behavior occurring, or punishing, decreasing the likelihood of a behavior occurring (Skinner, 1948). Reinforcers strengthen preceding behavior and will cause future behavior to increase or occur at a similar strength. For example, in the sports world, positive reinforcement may take the form of the first 10,000 fans being rewarded a bobble head of a star player at the stadium as a result of arriving at the game early. This reward and rewards like these will encourage fans to go to a game earlier to receive this reinforcement. Furthermore, reinforcers may also be negative, wherein the removal or avoidance of an aversive stimulus may cause an increase in behavior (Flora, 2004). Similarly, in sports, negative reinforcement may concern noise during games. Stadiums often do not have noise guidelines for fans to abide to. Rather, most stadiums will enforce the language being expressed as opposed to the volume it is

at. As a matter of fact, some stadiums, such as Arrowhead Stadium, home of the NFL's Kansas City Chiefs, or CenturyLink Field, home of the NFL's Seattle Seahawks, actively attempt to set crowd noise records during games (DiMatteo, 2014). In this situation, a fan who continually experiences discomfort from the screaming of other fans while sitting in the bleachers section may leave the game early or move to the standing sections of the stadium to avoid the noise. Here, the fan sought out to remove the aversive stimulus, the noise, by going to a quieter area of the stadium or leaving altogether. In the future, the fan may be more likely to move to a quieter area or leave early during periods of loudness, if s/he experiences discomfort from noise. From a more behavioral-economic standpoint, if the fan continuously experiences these loud events and perceives the noise to be aversive, they may purchase tickets in calmer areas of the stadium, such as the more expensive executive box section. Conceivably, the fan may even choose to view games at home rather than attending live games as a way to avoid the blaring environment.

Alternatively, consequences may also be punishing. In contrast to reinforcers, punishers operate to decrease behavior, but also comprise of positive and negative aspects (Flora, 2004). Positive punishment presents an addition of an aversive stimulus in order to decrease behavior, such as a driver being given a speeding ticket for driving too fast (Gazzaniga, Heatherton, Halpern, & Heine, 2006). In fans, positive punishment may be incurred when a fan throws an object onto the field during a game. Akin to the driver, the fan may receive a hefty fine to discourage behavior that disrupts the flow of the game and threatens the safety of players and personnel. Inversely, negative punishment serves to decrease behavior through the removal of an appetitive stimulus (Gazzaniga et al.,

2006). Similar to the case above, a driver may have their license revoked after being arrested for a driving under the influence (DUI) incident. Within sports, an example of negative punishment could be experienced if a fan commits an egregious act of violence like assaulting another fan or perhaps even a stadium official. Negative punishment, in this case, may take the form of the fan being banned from watching live games at the stadium for a set amount of time. This punishment would intend to deter any future acts of fan violence in this particular individual.

Based on consequences, such as those described above, approach or avoidance tendencies may emerge. Often, if the consequence has a positive effect, the individual may engage in approach behaviors (Krieglmeyer, Deutsch, De Houwer, & De Raedt, 2010). In sports, this may constitute continuing to attend games as a result of the team winning. However, if these consequences are negative, such as a stimulus being withdrawn, the individual may engage in avoidance behaviors. Similarly, fans may avoid attending a game due to restrictions on their ability to purchase alcohol, as many stadiums have cut off times/periods and may not have a wide selection of brands of alcohol to choose from. Generally speaking, consequences can bring about approach or avoidance responses in people. As a result of certain aspects of reinforcers and punishers, the ensuing events may direct individuals to behave in particular ways. However, the incentive values of such events are not set in stone. Rather, they may fluctuate based on the ever-changing environment.

The Motivating Operations Concept

As previously stated, operant conditioning involves changes in behavior as a result of the consequences of that behavior. Behavioral psychologists have long realized that the appetitive or aversive value of events are not fixed, but may change across situations and times. Variables that influence the appetitive/aversive value of a stimulus in operant conditioning are generally considered motivational variables. In recent years, behavior analysts have paid increasing attention to motivational variables using the Motivating Operations Concept (MOC; Laraway, Snycerski, Olson, Becker, & Poling, 2014). The current version of the MOC grew out of the work of Michael (1982, 1993), who refined the concept of the *establishing operation* (EO), first introduced by Keller and Schoenfeld (1950) and expanded upon by Millenson (1968). According to the MOC, *motivating operations* (MOs) are variables that change the appetitive or aversive value of stimuli (i.e., reinforcing or punishing function) in the context of operant conditioning. This effect is termed the *value-altering effect*. Based on their value-altering effect, MOs can be classified as either EOs or abolishing operations (AOs). EOs increase while AOs decrease the capacity for consequences to strengthen or weaken the behaviors they follow. In addition, MOs have another effect, termed the *behavior-altering effect*, which is a current change in the strength (frequency, rate) of behavior controlled by the consequence affected by the MO. Increases in strength are termed *evocative* effects, whereas decreases are termed *abative* effects (Laraway, Snycerski, Michael, & Poling, 2003). The MOC has been used successfully to describe, predict, and change behavior in a variety of contexts (Laraway et al., 2014).

MOs that do not require a particular learning history to exert value-altering effects

are termed *unconditioned motivating operations* (UMOs). Learned motivational variables

that gain their value-altering effects as a result of experience are termed *conditioned*

motivating operations (CMOs). UMOs are rooted within the evolutionary track of a

species, as opposed to an individual's learning history (Langthorne & McGill, 2009). For

example, food deprivation will increase the reinforcing value of food, and this

deprivation will exert an evocative effect on behaviors that have satiated the hunger

(Langthorne & McGill, 2009). Because sports consumption involves a learning history

(e.g., we are not born fans of particular sports teams), many MOs that influence fans'

consumption of TRS will be CMOs. This does not mean that UMOs do not affect the

behavior of sports fans. Obviously, purchasing bottled water or garlic fries at a baseball

game are clearly influenced by thirst or hunger, both of which are UMOs. As an example

of a CMO related to sports consumption, consider the process of purchasing tickets

online. The starting CMO is the desire to attend the game (which itself is the product of a

specific learning history as well as current events like wins/losses, etc.). This increases

the incentive value of obtaining tickets, which makes them more valuable as reinforcers.

The starting MO of wanting to watch the game live generates a chain of responses that

we can label *ticket-seeking behavior*, which is reinforced by events that move a fan closer

to obtaining the tickets. Each step in the chain is immediately controlled by different

intermediate and relatively temporary motivational variables and associated incentives.

For example, having the web browser open makes finding the ticket seller's URL

effective as a reinforcer and evokes behavior that takes one to the seller's web site (i.e.,

typing in the URL). Once at the web site, this makes finding and clicking the ticket-purchasing links effective as reinforcers and evokes behaviors that find them (i.e., searching and clicking). Barring any difficulty (e.g., forgetting one's password to one's account), the task is completed and confirmation that the tickets have been purchased is displayed. This is the terminal reinforcer for this proximal chain of responses. Of course, this is just one portion of a larger operant response unit we could term *attending games*. Put simply, wanting to attend a game will act as a CMO that will strengthen the effectiveness of tickets as reinforcers because tickets are required to attend a game. Since tickets are arbitrarily related to attending the game, they have no intrinsic incentive value in and of themselves. Their value depends on our statements and judgments of their value, which depends on many variables, including our learning history, social milieu, the team's win/loss record, our income, and so on.

CMOs are divided into three main categories: CMO-surrogate (CMO-S), CMO-reflexive (CMO-R), and CMO-transitive (CMO-T; Michael, 1993). A CMO-S changes the value of consequences that are under the control of an associated MO and takes on the function of that MO (Michael, 1993). In other words, a CMO-S acts as a substitute for the original MO since it takes on the same function as the original MO. Take the case of an individual who watches the news every morning while eating cereal. This person may pair the act of eating cereal with conditions related to news-watching, even in situations when the individual is not deprived of cereal (Langthorne & McGill, 2009). In sports consumption, a CMO-S may exist as a fan for whom beer-deprivation and watching a game are paired. The fan may have the urge to drink beer during the game even when

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they are not deprived of beer due to the condition of watching the game. Therefore, s/he may drink more beer during a game than s/he would otherwise.

CMO-Rs are events or stimulus conditions that reliably predict the occurrence of aversive or appetitive events and usually evoke avoidance behaviors that prevent aversive events from occurring or appetitive events from terminating (Michael, 1993). As an example of the former, fans may take different routes to a game, such as using public transit in order to avoid heavy traffic. Assume that missing parts of the game is aversive (for a variety of reasons, many of which may be verbal statements about lost money or missed plays). A fan may check his/her traffic application on his/her smartphone and see nothing but red (heavy traffic) on the highways to the stadium. As a result, the fan may decide to take public transportation. In this situation, the heavy traffic acts as a CMO-R, which evokes avoidance behavior such as seeking quicker alternative routes to the stadium. Avoiding the traffic will get the fan to the stadium faster, allowing the fan to see more of the game. This should act as a reinforcer for using public transportation in similar circumstances.

Lastly, a transitive CMO operates under conditions or stimuli wherein the presence of a previously neutral stimulus alters the effectiveness of another stimulus and evokes responses that produce or suppress that stimulus (Michael, 1993; Fagerstrøm, 2010). Consider the case in which an individual seeks to purchase a laptop. The purchase of a laptop makes complimentary items, such as a wireless mouse or external hard drive, more effective due to the original purchase of the laptop. Similarly, in sports consumption behavior, a fan's purchase of a blank team jersey may make complimentary

services, such as personalized embroidery, more reinforcing. As a result, the fan may then choose to add this to the jersey. In this case, the blank jersey acts as the CMO-T, which increases the incentive value of the personalized embroidery.

Further Aspects of Operant Behavior

Operant behavior may be defined as contingency-shaped or rule-governed. Contingency-shaped behaviors revolve around learning experiences in an environment that are regulated by the direct contact with contingencies (Galizio, 1979). In sports, contingency-shaped behavior may occur when a fan is watching a game online with his/her smartphone, computer, or tablet while attending closely to his/her Internet connectivity to allow for perpetuated viewing of the game. If the fan moves the device around the room and discovers that the connectivity is better in one location versus another, the fan may spend more time placing the device in the better location. Barring other influences, given that in this case the physical environment largely influences the behavior, the person may simultaneously make statements about the situation and these statements may influence his/her behavior (Hayes, Brownstein, Zettle, Rosenfarb, & Korn, 1986; Malott, 1988).

In contrast, rule-governed behavior is primarily influenced by verbal statements that describe the contingencies (rightly or wrongly) that may or may not affect behavior. For instance, rule-governed behavior may entail following a manual in order to put together an item, such as a piece of furniture. In a sports setting, rule-governed behavior may involve following stadium rules during the game. This may occur when fans watching a game withhold excessive behavior (e.g., throwing items at opposing players)

when their team may be losing. Abiding by the stadium rules would act as a rule-governed behavior as a means to avoid the consequence of being escorted out of the stadium. Considering this, within these rule-governed behaviors lie various types of rule-following, those being: tracking, pliance, and augmenting.

Tracking is a type of rule-governed behavior under the control of a non-physical environment. This entails that the behavior is being evoked for appropriate reasons within a physical or temporal context (Zettle & Hayes, 1982). For instance, tracking may involve following specific directions to a location. In the sports-world, tracking may take the form of turning on the television to watch the game at its appropriate start time or using public transit in order to walk to the stadium. Furthermore, the concept of pliance involves behavior that is regulated by the social environment, wherein rule-following carries social consequences for compliance or noncompliance. As an example of pliance, a person may drive at the posted speed limit in order to avoid being pulled over by a police officer and possibly receiving a speeding ticket. (Törneke, Luciano, & Valdivia, 2008). From a sports consumption perspective, pliance may be represented by the social repercussions of wearing an opposing team's jersey to a game, which acts as noncompliance to support of the home team. In such cases, opposing fans may ridicule or target the individual for wearing apparel that is of threatening or opposing nature. In contrast, pliance may also be embodied by following common fan gestures or acts during games. One such example of this would be complying with the long-standing tradition of Chicago Cub fans throwing the home run ball of an opposing player back onto the field at

Wrigley Field. This act, and acts like these, may allow the individual to integrate well within their social environment and thereby avoid any negative social consequences.

Ultimately, the rule-governed behavior of augmenting encompasses behavior that changes the reinforcing value of consequences in accordance with an antecedent rule (Törneke et al., 2008). It must be noted that augmentals serve as motivational variables and may not simply specify contingencies, like tracking and pliance. Rather, augmentals may also work within abstract consequences not overtly associated with exerting control over behavior (Törneke et al., 2008). For instance, from a fan's perspective, the statement: "The game's on, doesn't a beer sound good?" may make beer more effective as a reinforcer and bring about seeking and drinking beer. In addition, the statement: "That was a great game, what are the blogs saying?" may make seeking and consuming blog comments more effective as reinforcers and evoke blog-seeking and -reading behavior. Augmenting works not only within the limitations of tracking and pliance, but also allows for flexibility of rule-following wherein constraints become more lenient and compliance or noncompliance may or may not hold fervent consequences.

As described previously, within the context of each type of rule-governed behavior lie certain types of stimuli. These stimuli trigger particular sets of responses in organisms. As alluded to previously, different stimuli in the environment may evoke the same behavioral pattern. Stimulus equivalence classes pertain to varying stimuli that produce identical responses (Madrigal-Bauguss & Glenn, 2008). For example, fans may respond to the team name (e.g., " San Francisco Giants," and the visual logo of the team in the same fashion). The simple association between these two stimuli can bring about

identical responses and may even be interchanged as the transfer of function of each stimuli lies within the feature of the equal membership in the equivalence class (Dougher, Augustson, Markham, Greenway, & Wulfert, 1994). As listed above, such stimuli may often elicit similar behavioral patterns. However, these evoked behaviors may even lead to the same outcomes. Accordingly, these patterns of behaviors have been termed response classes. Response classes refer to all behaviors that serve the same function and/or produce the same consequence (Malott & Trojan, 2008). For instance, using a map or a GPS to plan out and follow a specific route to a destination will result in the same consequence (i.e., arriving at that set destination). In a sports context, response classes may pertain to consumption behavior, such as using a mobile device, newspaper, or desktop to read about articles related to one's identified team. All these forms of media behavior will allow the user to come to the set goal, in this scenario, reading about one's team.

As noted earlier, wins and losses by a team may change the appetitive or aversive value of team-related stimuli as evidenced by changes in the operant behavior of sports fans with respect to these stimuli. Although they may do so through different mechanisms and behavioral histories, wins and losses may serve as MOs for a variety of fan behaviors. In this respect, the consumption of sports-related stimuli may be influenced by the perception of team accomplishment. However, the degree to which team performance serves as an MO for a given fan's behavior may depend on that fan's connection to the team. In other words, a fan's level of identification with the team may act as an MO and moderate the effects of team performance on team seeking behaviors and consumption of

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team-related stimuli. Undoubtedly, the propensities in fan behavior may lie within social sectors and the active environment. However, additional behavior-analytic aspects in describing fan behavior may pertain to these situations.

Behavioral Theories of Consumption

The Behavioral Perspective Model (BPM) posits that individuals' consumption behavior is operant behavior. These behaviors are selected on the basis of their consequences under contingencies of reinforcement or punishment (Foxall, 1994). The BPM proposes that consumer behavior occurs under certain behavior settings that seek to facilitate or inhibit such behavior (Foxall 1992, 1994). The scope of such behavior settings lie within the extent to which the setting has a facilitative or inhibitive effect on consumer behavior due to the actions of discriminative stimuli and MOs (Hantula & Wells, 2010). These behavior settings sit on a continuum from open to closed settings. Open settings stimulate relatively "free" consumption behaviors by which more behaviors are permitted (Foxall, 1993). From the sports consumption outlook, these "free" behaviors may comprise of a fan selecting various types of beer and snacks at a local supermarket, such as BevMo!, for consumption during a game. Alternatively, closed settings pose a number of constraints on consumer behaviors by some other agency (Foxall, 1993). Deriving from the open setting sports example, a fan may be placed under constraint at his/her identified team's stadium, where there are only a few brands of beer and snacks to choose from. These behavior settings contain antecedents that may alter the effectiveness of a consequence based on the type of antecedents that are present.

The BPM postulates that consumer choice depends on a multifaceted situational reinforcement matrix, involving utilitarian and informational reinforcement along with aversive consequences (Foxall, 1994, 2001). *Utilitarian reinforcement* refers to a direct form of feedback, or reward, that influences consumption (Foxall, 1994). Utilitarian reinforcers are functional in nature and can be measured to the extent of the physicality of the reward itself, such as drinking a specific type of soda, receiving more monetary reward, or eating a particular muffin (Yan, Foxall, & Doyle, 2012). Utilitarian consequences are hedonic and generate satisfaction from buying, owning, and consuming economic goods. Examples of this include saving money by owning a hybrid vehicle due to its exceptional fuel economy or flying first class on a flight (Du, 2009). As an example in sports, individuals may gain utilitarian reinforcement from sitting in the luxury box suites at a stadium. In contrast, *informational reinforcement* involves feedback that is founded upon social status, self-esteem, and other more intrinsic self-concepts (Foxall, 2001). This type of reinforcement may involve experiencing positive feedback from others, such as praise, or perhaps even envy, for buying a luxury vehicle like a Mercedes Benz or BMW (Du, 2009). In a sports setting, informational reinforcement may originate from owning a collectable jersey, such as one worn in a game by NBA Legend Michael Jordan. Ultimately, *aversive consequences* involve costs and other efforts given up in the execution of particular consumption behaviors (Yan et al., 2012). For instance, the cost to purchase sports items results in a loss of money in acquiring such goods. Furthermore, individuals must also put forth a certain amount of response effort in order to come in contact with sports-related stimuli, which may involve giving up certain opportunities to

consume certain stimuli. In this context, fans may often surrender the opportunity to attend other events in watching a sporting event, whether it is live or being broadcasted. Fittingly, the utilitarian, informational, as well as the aversive aspects of the BPM can be used to describe the likelihood of an individual engaging in particular consumption behaviors. However, these processes are mediated by antecedent events, or precursors to the initiation of behavior, as well as individual characteristics in relation to behavior, such as accomplishment, accumulation, maintenance, and pleasure (DiClemente & Hantula, 2003a; Smith & Hantula, 2003).

The notion of *accomplishment* refers to personal attainment or achievement entailing both economic and social allocations. Accomplishment is of both high utilitarian and informational nature in that it produces high satisfaction and status enhancement (Foxall, 1992). In sports, a fan may place a monetary bet on his/her identified team winning. Consequently, when the team wins, the fan may feel a great sense of accomplishment, both socially, directly from his team winning, and economically, derived from his/her financial winnings from the bet. *Accumulation* builds on this concept and connotes behaviors involving the saving, collection, and buying of an entity (DiClemente & Hantula, 2003a). This feature acts as low utilitarian and high informational reinforcement seeing as the amount of the accumulated entity in addition to how close one is to the possessing a desirable amount of the entity acts as reinforcers to consumption behavior. As an example in sports, fans may purchase players' jerseys from their favorite team and will continue to do so until their collection is complete.

DiClemente and Hantula (2003a) suggested that the behavioral concept of *maintenance* involves activities necessary for the survival of a being, more related to the physical status of an individual, such as eating food and the execution of societal tasks (e.g., paying taxes). It is of both low utilitarian and informational nature in that it works to fulfill both physical and social obligations. Fans may often preserve a state of maintenance by purchasing food and drinks during games and paying taxes on the tickets they purchase. Lastly, *pleasure* refers to the consumption of popular entertainment. Often, pleasure holds high utilitarian and low informational aspects of reinforcement. Simply put, pleasure entails consumption "for fun." As in sports consumption, fans often consume sports- and team-related stimuli out of their own personal interests. With these components in mind, the aspects of accomplishment, accumulation, and pleasure can be connected to how sports fans may engage in particular actions as mechanisms to fulfill these satiating behaviors (DiClemente & Hantula, 2003a).

Consumer behavior tends to also be influenced by an individual's learning history. These personal factors can prime an individual to either approach or avoid certain stimuli relative to the task at hand (Arboleda & Escobar, 2011). Generally speaking, in fans, wins tend to evoke approach responses toward the identified team-related stimuli through BIRGing, while losses may generate avoidance tendencies, in the manner of CORFing. These behaviors and those mentioned previously constitute the behavioral repertoire of the individual (Paulus, Geyer, Gold, & Mandell, 1990). This subset of available behaviors is formed through cumulative effects of experiences with reinforcement and punishment contingencies (Malott, 1993). Accordingly, these factors

are also influenced by the conditioning history of the individual. Specifically, these factors are affected by how conditioned reinforcers and punishers along with conditioned emotional responses act, as in classical conditioning (Weiner, 1964). In fans, conditioned reinforcers may stand as wins, or good team performance, whilst conditioned punishers may be represented by losses, or poor team performance. In the presence of either of these consequences, fans will respond through conditioned emotional responses, such as positive affect (happiness, pleasure, approach) following wins and negative feelings (anger, sadness, avoidance) following losses, varied by individual differences in the level of team identification.

Another behavioral economic approach to studying consumer behavior is the Behavioral Ecology of Consumption (BEC; Smith & Hantula, 2003). Similar to the BPM, the BEC is based on operant theory and postulates that consumer behavior is founded upon consequences that follow with choice behavior (Rajala & Hantula, 2000). The BEC suggests that consumer behavior follows practices originating from foraging behaviors, which include the process of searching for items, the consideration of alternatives, and finally, the choice of the item (Lea, 1979). Such behavior is influenced by ecological demands (i.e., those placed by the environment or setting) and will adapt based on the prevailing conditions (Buss, 1995). The BEC has been studied from a consumer behavior perspective in the investigation of online purchase behaviors. This research has found support for concepts related to the behavioral ecology of consumption, specifically foraging as a basis for consumption behavior (Rajala & Hantula, 2000). Prior research has noted that the effectiveness and sensitivity towards certain reinforcement can be

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influenced by the addition of environmental cues, which may be described as antecedents, in an online consumer environment (DiClemente & Hantula, 2003b). In line with operant concepts, the BEC considers the importance of consequences in the initiation of behavior and notes that that the effects of such consequences on the organism can alter how they seek out commodities and make choices towards items in the environment (Smith & Hantula, 2003).

Both the BPM and BEC propose that choice behavior is contingent upon the incentive value of stimuli. Appropriately, these complementary approaches to *consumer behavior analysis* conceptualize consumer choice as operant behavior that occurs in a given context. Because they view consumer behavior as behaviors that involve the "search, choice, consumption, and disposition of goods" (DiClemente & Hantula, 2003a, p. 596), these behavioral theories of consumer behavior are consistent with behavioral ecological models of foraging in humans and nonhumans. Both the BPM and BEC are rooted in evolutionary *and* economic theory in that they view consumer behavior as involving aspects of foraging behavior, in which behavioral costs (time and energy) are exchanged for commodities obtained from searches of the environment. These searches are evaluated by organisms and may directly contribute to the execution of the ideal choice (Hames, 1992). As Hantula, DiClemente, Brockman, and Smith (2008) noted, consumer behavior is "a bio-behavioral phenomenon, in which consumer decision-making is governed by behavioral adaptations in ancestral environments" (p. 147). Although the BPM and BEC have been used to successfully describe consumer behavior

in a variety of situations (Hantula & Wells, 2010), to our knowledge it has never been applied to sports consumption behavior.

Sports Consumption From a Behavioral Perspective

A primary aspect of sports-related fan behavior is the consumption of sports-related products and stimuli (physical items, media, events), which includes behaviors such as purchasing tickets and attending games, reading and talking (including texting, blogging, etc.) about teams and their performance, buying merchandise, and watching games on television or via the Internet (Hur, Ko, & Valacich, 2007; Trail, Fink, & Anderson, 2003). From a behavioral economic perspective, sports-related items and media can be viewed as commodities that can vary in their incentive value across time and individuals due to certain contextual and historical variables (Foxall, 1998). For instance, the presence of logos of one's identified team on certain products may make the purchase of these items more desirable. Historical variables, which may include wins and losses, can affect how fans seek out the team within a given context. For example, although present events may be more influential on fan behavior, historical factors may be able to affect the incentive value of items when related stimuli, such as stimuli related to prior team championships and success, become available in the environment. Fans may go on to consume team-related stimuli as a result of the presence of these historical variables, given that success becomes a socially desirable as well as behaviorally motivating aspect in consumption behavior. With this in mind, the present study will attempt to integrate the sports concepts from the team identification and sports consumption literatures with the behavioral concepts from the BPM, BEC, as well as the

MOC in describing fan behavior, self-esteem, and affect following a win, a loss, and a neutral event.

Choice Behavior and the Present Study

Several authors have noted that choice behavior can be influenced by informational reinforcement as well as the reflected value of an item, wherein individuals are more likely to seek out an item when they are more motivated to do so and the item has some sort of personal or social connection (Foxall, 1993, 1994, 2001; Hantula et al., 2010; Yan et al., 2012). In line with the BPM, Fagerstrøm (2005) has affirmed that choice behavior is influenced by consequences, in which the choice of the item may hold specific repercussions. In addition, he contends that the processes of consumption "do not occur in a vacuum" (Fagerstrøm, 2005, p. 6), but rather may take place in a plethora of settings. In a later examination, Fagerstrøm (2010) noted that motivating operations could affect this exact mechanism of choice behavior in the consumption of online products, suggesting that antecedent stimuli may produce value-altering effects. In Fagerstrøm's (2010) study, these antecedents were displayed in the form in-stock status, customer reviews, and order confirmation of items. Returning to the present investigation, sports-related events, or commodities, may serve this same purpose in reinforcing or decreasing the effectiveness of a consequence through team performance, as previously explicated. Simply, team performance may alter the reinforcing value of the effectiveness of related stimuli such that consequent choice behavior may follow such performance, functioning as an antecedent. Nevertheless, the personal association, or investment that is the level of team identification an individual may hold, may influence this relationship.

Previous examinations have not attempted to observe these behavioral processes (e.g., BPM, BEC, and MOs) in sports fans, wherein the identified team is the entity to which the individual shares a connection. Prior studies have merely examined the underlying motives for sport consumption and why fans behave in certain ways with regards to players and coaches. Furthermore, past studies have focused on self-esteem with respect to how fans may feel about themselves after a win or loss, operationalized as immediate evaluations of the self via state self-esteem (Heatherton & Polivy, 1991). Accordingly, within this study, the mechanisms of behavior will be employed to produce responses that explain such fan processes. This study aims to examine fan behavior in the context of such situations wherein BIRGing, CORFing, and BIRFing behaviors may be executed. However, CORSing behaviors are not expected to take place, as they are limited to a very rare subset of fans (Aiken et al., 2005). In relation to the BPM and BEC, the threshold of fan support will be inspected using a simple behavioral task that will provide reinforcement for responses related to an individual's identified team. To be explicit, it is the intention of this study to empirically assess how antecedent stimuli, acting as motivating operations, alter the reinforcing value of consequent stimuli and thereby, promote the fan behaviors as mentioned. Mainly, the current study will be attempting to tackle the following research questions:

RQ1: Do explanations for fan behavior interact with behavioral consequences implicated in the BPM and BEC?

RQ2: Do fans of varying identification deviate in terms of support?

RQ3: How does the level of team identification interact with motivation to produce behavior towards reinforcement?

RQ4: How can reinforcement influence and generate BIRGing, CORFing, and BIRFing?

RQ5: Are fans' self-esteems truly affected following the performances of their identified team?

In an attempt to not only answer the above-mentioned questions, but also provide evidence for novel outlooks, this study contains two main hypotheses, a primary and secondary hypothesis. Based upon previous research (Aiken et al., 2005; Branscombe & Wann, 1991; Campbell et al., 2004; Dhurup, 2012; Fagerstrøm, 2005; Fagerstrøm, 2010; Foxall, 1990, 1992, 1994, 2001; Kwon et al., 2008; Laraway et al., 2014; Michael, 1982; Trail et al., 2003, Wann, 1994; Wann & Branscombe, 1990; Wann et al., 2000), the primary hypothesis stipulates that antecedents acting as MOs, displayed in the form of videos, will alter the reinforcing value of team-related stimuli, specifically San Francisco Giants-related stimuli (GRS). In addition, the level of team identification will moderate the effects of such stimuli. It is expected that fans will behave in the manner in which they report, through BIRGing, CORFing, and BIRFing. Accordingly, the primary hypothesis is formulated in the following fashion, as displayed below:
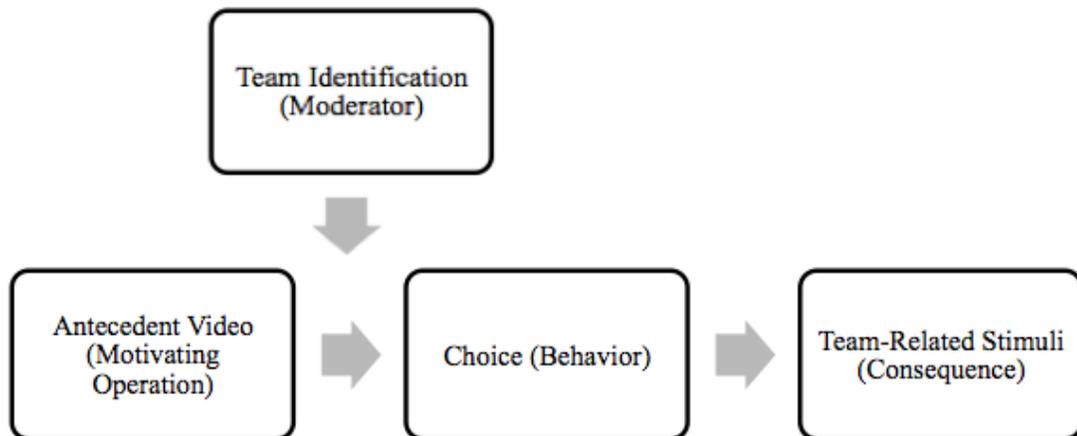
Figure 1

Proposed Model for Primary Hypothesis

In the proposed model, the antecedent video will serve as a motivating operation

with respect to the choice to view stimuli. This choice will have a consequence, as placed

in the form of viewing the team-related stimuli, displayed as GRS. However, within the

crux of this model lies a moderating variable, that being team identification. We predict

that team identification will serve as a moderator towards choice behavior following the

viewing of the various antecedent videos. Specifically, stronger levels of identification

will lead to more choices of GRS irrespective of team performance, positive (winning) or

negative (losing), than weaker levels of team identification. Taking from previous

research, these choices will be reflected as existing fan behavior (i.e., BIRGing, BIRFing,

and CORFing; Aiken et al., 2005; Campbell et al., 2004; Cialdini et al., 1976; Dhurup,

2012; Kwon et al., 2008; Wann & Branscombe, 1990). To be exact, the following outcomes are expected:

H1a: Highly identified fans will engage in BIRGing and BIRFing.

(a) *Will report high levels of BIRGing*

(b) *Will report lowest levels of CORFing*

(c) *BIRGing: highest percentage of choices for GRS after the winning video*

(d) *BIRFing: highest percentage of choices for GRS after the losing video*

H1b: *Moderately identified fans will engage in BIRGing and CORFing.*

(a) *Will report high levels of BIRGing*

(b) *Will report higher levels of CORFing than highly identified fans*

(c) *BIRGing: high percentage of choices for GRS after the winning video*

(d) *CORFing: lower percentage of choices for GRS after the losing video than highly identified fans*

H1c: *Low identified fans will engage in BIRGing and CORFing.*

(a) *Will report high levels of BIRGing*

(b) *Will report highest levels of CORFing*

(c) *BIRGing: high percentage of choices for GRS after the winning video*

(d) *CORFing: lowest percentage of choices for GRS after losing video*

In other words, this study predicts that sports-related events, or commodities, in this case antecedent videos of Giants-related performance, will serve as reinforcers that will influence choice behavior. Figure 2 presents a visual representation of the predicted outcome.
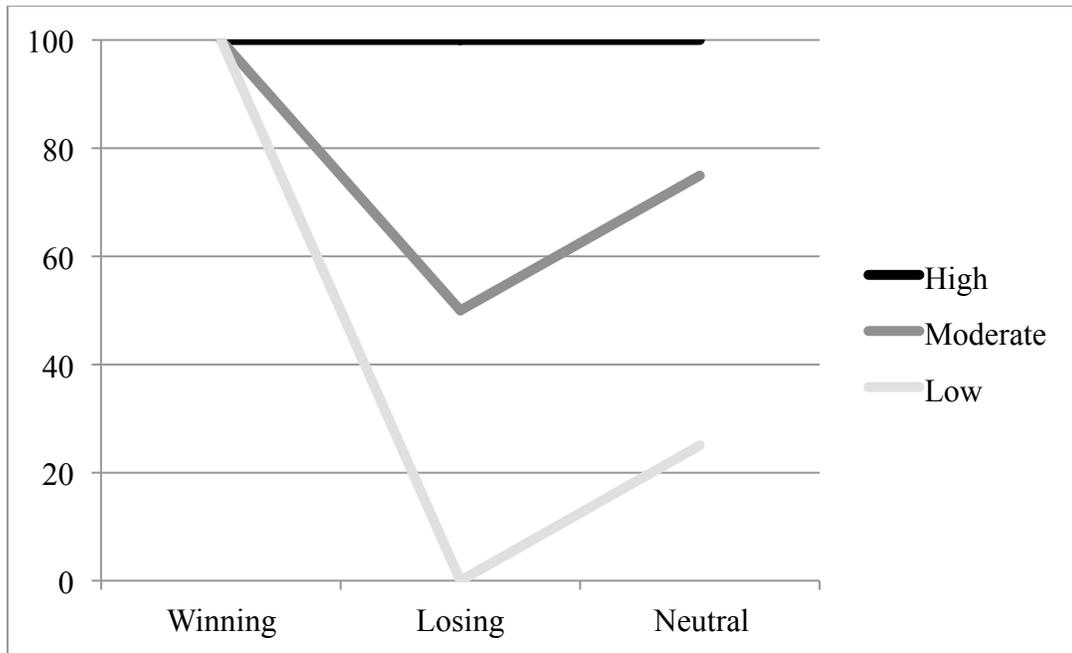
Figure 2

Idealized Performance on the Behavioral Choice Task

In addition to the primary hypothesis, this study also includes a secondary hypothesis. This hypothesis predicts that:

> **H2:** Regardless of the level team identification, fans will experience small changes in self-esteem following team performance, whether that be positive or negative, contrary to what was once previously believed.
>
> > **(a)** *Team performance will bring about more affective changes (i.e., on mood).*

Although prior research has found more significant changes in self-esteem (Bizman & Yinon, 2002; Hirt et al., 1992; Murrell & Dietz, 1992), this study anticipates that the self-esteem of each type of identified fan (i.e., low, moderate, and high) will be minimally

affected by team performance, as the evaluative feelings about oneself is expected to be separate from the personal investment in the team. Rather, this study expects fans to experience more significant affective, or mood, changes following the various team performances.

Method

Participants and Design

Prior to data collection, a power analysis was conducted to calculate the necessary sample size for the primary dependent variable in this experiment, percentage of choices for Giants-related stimuli (GRS). As determined in G*Power (Erdfelder, Faul, & Buchner, 1996), in order to achieve a medium effect with power of .80 and α of .05 using a repeated measures design with three measurements, this study required 28 participants. A total of 203 individuals took part in the study as a research fulfillment for an introductory psychology course, extra course credit, and/or for the chance to win two tickets to a San Francisco Giants home game. Due to participant drop out and missing data, the complete responses from 68 individuals (21 male; 47 female) were considered in our analyses.

The original planned design was a 3 (team identification: high, moderate, low) × 3 (antecedent type: winning, neutral, and losing) mixed design, with antecedent type as the within-subjects factor and the level of team identification as the between-subjects variable. Inopportunely, there were no low identified fans in our obtained sample. As such, the actual design that was employed was a 2 (team identification: high, moderate) × 3 (antecedent type: winning, neutral, and losing) mixed design. This study used a

specified sample of fans of the MLB's San Francisco Giants, ranging in age from 18 to 71 years of age ($M = 33.21$, $SD = 16.14$). This sample was selected since Giants fans are plentiful in the San Francisco Bay Area. Fans were pre-screened prior to the beginning of the experiment, in that we explicitly asked that only Giants fans participate. We did not include data from participants who indicated that they were not fans of the San Francisco Giants.

Participants were recruited through various Psychology courses taking place during the Summer and early Fall 2014 sessions at San José State University. A brief description of this study was also posted on the Department of Psychology's SONA Systems site. In addition, we asked Psychology instructors to announce the study in their classes. The instructors were provided a link to the online survey to distribute to their students. Participants were also recruited from Craigslist advertisement postings. The following description was posted on the site:

> *Are you a San Francisco Giants fan? If so, would you like the chance to win 2 free tickets to a Giants home game? To enter the raffle to win the tickets, all you have to do is answer some questions about your love for the Giants for a research project on the attitudes and opinions of Giants fans. To get started, please visit: (LINK TO SURVEY). Thank you!*

Potential participants were not contacted directly. Participation was completely voluntary and participants may have opted out at any time. This study was approved by the San José State University Institutional Review Board (IRB).

Apparatus and Materials

The experiment was completed online. Participants were required to have Adobe
Flash Player 10 or higher in order to view the short clips of sports performances.
Antecedent videos (used as precursors prior to behavioral assessment; DiClemente &
Hantula, 2003a) were clips of the San Francisco Giants winning the World Series, the
Giants performing poorly and thus losing a game, and a golfer driving the ball and then
putting (see Appendix A). The stimuli presented were related images of the San
Francisco Giants including logos, players, and pictures of the stadium. Neutral stimuli
consisted of images of soccer logos, rugby logos, and golf scenery.

Measures

Team Identification. A measure of team identification to the MLB's San Francisco
Giants was obtained using a revised version of the Sport Spectator Identification Scale
(SSIS; Wann & Branscombe, 1993). This task prompts participants to identify their
commitment, or fanship, towards a specific team. An example of a modified item is:
"During the season, how closely do you follow the San Francisco Giants via ANY of the
following: (a) in person or on television, (b) on the radio, (c) television news, (d) through
applications on your smartphone, tablet, or computer, (e) online sports site or blog?" This
questionnaire consisted of seven items using a 7-point Likert-type scale to indicate the
extent to which one identifies with his/her team; in the case above, 1 (Never) to 7
(Almost Every Day). Scores could range between 7 and 49, with 7 indicating a low level
of fanship and 49 indicating the maximum level of fanship. Thus, higher scores on this
revised measure indicated higher levels of identification with the San Francisco Giants.

Ratings were summed across the seven items to create identification scores and to categorize fans as having low, moderate, or high identification with the Giants. A lower identified (LI) fan was considered to be within 0-33.3% of the highest attainable score, specifically 0.00-16.33. Moderately identified (MI) fans were placed within 33.4-66.7% of the maximum obtainable score, or 16.34-32.66 on the scale. Lastly, highly identified (HI) fans were placed within the range of 66.8-100% of the highest possible score, or between a total score of 32.67-49.00 on the measure. Cronbach's internal reliability coefficient for the SSIS (.91) has established it as an internally reliable assessment of team identification (Wann & Branscombe, 1993). In the present study, Cronbach's alpha was equal to .86. The test-retest reliability for this measure is modest, with a significant coefficient r (49) = 0.60, p < .001. However, Wann and Branscombe (1993) note that the interval between retest was unusually long in their validation, (i.e., one year), in which team identification may have been influenced by team changes during the season and off-season. Previous studies have also established convergent validity for the SSIS, yielding significant inter-correlations and an average item-total correlation of .59 (Wann & Branscombe, 1993). This indicates that it is a valid assessment of team identification (see Appendix B).

Basking in Reflected Glory Scale. A modified version of Spinda's (2011) Basking in Reflected Glory (BIRGing) Scale was used to measure participants feelings following a win by their identified team, in this case the San Francisco Giants. The BIRGing Scale is a 9-item questionnaire which uses a 5-point Likert-type scale, with responses of 1 (Strongly Disagree) to 5 (Strongly Agree), to assess how an individual fan acts following

a win by their identified team. Items are directed by the following, modified initial phrase: *After the San Francisco Giants win*. An example of a succeeding, modified item is: "I am more likely to purposely watch highlights of the Giants after the game." Scores could range between 9 and 45. Higher scores on this measure denoted a higher likelihood of supporting the Giants following a win and basking in that success. Alternatively, lower scores on this scale could have indicated a higher inclination to stray away from the team following a win, or perhaps even cut off reflected success (CORS). Scores were averaged across items prior to analysis. Spinda (2011) has reported a Cronbach's alpha of .88 for this scale, establishing it as a reliable form of testing BIRGing. In the current study, similar internal consistency procedures yielded a Cronbach's alpha equal to .69 (see Appendix C).

Cutting off Reflected Failure Scale. Spinda's (2011) Cutting off Reflected Failure (CORFing) Scale was modified to cater to San Francisco Giants fans. The CORFing scale is a 10-item questionnaire that uses a 5-point Likert-type scale, with responses of 1 (Strongly Disagree) to 5 (Strongly Agree), to evaluate how an individual fan may react following a loss by his/her identified team. In this experiment, participants responded to various items following the instructive phrase: *After the San Francisco Giants lose*. For example, one item taken from this modified version of the CORFing Scale is: "I usually choose not to watch highlights of the Giants after the game." Scores could range from 10 to 50, with 50 being the maximum and 10 being the minimum. Higher scores on this scale signified a higher probability of withdrawing support for the team in the presence of a loss (i.e. displaying CORFing). Lower ratings on this scale indicated a higher likelihood

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of supporting the team during a loss, or perhaps even the expression of basking in spite of reflected failure (BIRFing). These scores were averaged across the ten items for data analysis. Spinda (2011) has calculated reliability for this measurement, yielding a Cronbach's alpha equal to .83. This internal consistency measure verifies the scale's reliability in assessing the concept of CORFing. In the present study, Cronbach's alpha for this measure was .91 (see Appendix D).

Motivation Scale for Sports Consumption. In order to evaluate the motives for being a fan of the San Francisco Giants, a modified version of Trail and James' (2001) Motivation Scale for Sports Consumption (MSSC) was employed. The MSSC is a 27-item scale that measures the motives behind why fans follow a team. The MSSC categorizes items into nine main groups relative to the identified team and sport: Achievement, Knowledge, Aesthetics, Drama, Escape, Family, Physical Attraction, Physical Skills, and Social. The Physical Attraction category was omitted in this experiment, as it was not of primary interest. Accordingly, only 24 of the original items were employed in this experiment (see Appendix E).

Responses were measured on a 7-point Likert-type scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The maximum attainable score on this measure was 168 and the minimum was 24. Higher scores on this measure indicated a stronger inclination to be motivated to follow the Giants, as placed in one of the eight categories. An example of a revised item taken from the Achievement section of the measure is: "I feel proud when the San Francisco Giants play well." Within each factor, responses to the items were averaged for analyses. Cronbach's alpha coefficient has been calculated for each

subscale of this measure. The following Cronbach's alpha coefficients have been reported: Achievement (.89), Knowledge (.80), Aesthetics (.88), Drama (.80), Escape (.72), Family (.68), Physical Skills (.75), and Social (.78; Trail & James, 2001). Overall, the MSSC has a global alpha value equal to .87, as calculated by Trail and James (2001). This has confirmed the internal consistency of the MSSC, indicating that it is a reliable form of assessing motives for sports consumption. In the current study, identical internal consistency measures generated the respective alpha coefficients for each factor: Achievement (.82), Knowledge (.94), Aesthetics (.93), Drama (.68), Escape (.89), Family (.67), Physical Skills (.84), and Social (.90). Taken as a whole, this study generated a Cronbach's alpha of .92 for the overall reliability of the MSSC.

Behavioral Measure. To test the primary hypothesis, this study employed a simple behavioral task wherein participants would select stimuli, displayed as images, following each antecedent. Participants were presented a pictorial-based two-alternative forced choice task (2AFC; Shimp, 1966) with stimuli related to the San Francisco Giants and general sports items, such as soccer, golf, or tennis related pictures, presented in the form of a collage of images. The collection of pictures presented included logos, apparel, newspaper headlines, athletes, scenery, and/or in-game still images of general sports or the San Francisco Giants. Two trials of this 2AFC were completed following each antecedent video. Participants were to indicate which form of images they would prefer to continue to view.

In the context of the present study, percentages of choices for Giants-related stimuli (GRS) for each participant in each condition were computed following each antecedent

video (i.e., 0%, 50%, or 100%). Successive responses following the videos were categorized into each form of fan behavior. Following the winning antecedent video, no choices for GRS (0%) were considered cutting off reflected success (CORSing), wherein participants would tend to select general sports stimuli following the video, although this was not expected. In contrast, a 100% response rate to GRS following the winning video indicated basking in reflected glory (BIRGing). After viewing the losing antecedent video, participants who selected GRS at a rate of 0% were considered to be cutting off reflected failure (CORFing), whereas those who selected GRS 100% of the time were considered to be displaying basking in spite of reflected failure (BIRFing).

State Self-Esteem. In testing the secondary hypothesis, a measure of state self-esteem was obtained using a modified version of Heatherton and Polivy's (1991) State Self-Esteem Scale (SSES). The SSES is a 20-item questionnaire that employs a 5-point Likert-type scale, with responses of 1 (Not at all like me) to 5 (Extremely true of me right now), to measure three components of a person's self-esteem (i.e., performance, social, and appearance self-esteem), at any given time. Six items that assessed appearance self-esteem feelings were omitted in this study, as body image was not of interest. Accordingly, 14 of the original 20 items were utilized to assess state self-esteem following the viewing of each of the three antecedent videos. Prior to analyses, items that were negatively phrased were reverse coded within the self-esteem subscales. Items were then summed to create a total self-esteem score, with a minimum of 14 and a maximum of 60. In this case, higher scores indicated higher levels of self-esteem (i.e., more positive feelings about one's self at the moment).

One example item taken from this measure is: "I am worried about what other people think of me." Heatherton and Polivy (1991) have assessed the internal reliability of the SSES. Findings from their evaluation indicate that the scale is an appropriate form of measuring state self-esteem, yielding a Cronbach's alpha equal to .92 (Heatherton & Polivy, 1991). In this study, Cronbach's alpha for the overall internal consistency of this scale produced a coefficient of .95 (see Appendix F).

General Feelings Assessment. In order to further test the secondary hypothesis, participants reported general feelings following the antecedents through the Self-Assessment Manikin (SAM; Lang, 1985). The SAM is a 3-item questionnaire that employs a 5-point picture scale to assess feelings of emotional valence (pleasure), arousal, and dominance following the presentation of various stimuli. Each point on the scale is presented with a small cubic-based humanoid figure to visually display possible feelings. Each feeling is presented with a distinct figure (see Appendix G). The highest possible score on this measure was 15 and the lowest was 3. Higher scores on the SAM indicated more feelings of pleasure, arousal, and dominance with respect to feelings resulting from the antecedents. Ratings on each item following each antecedent were individually considered for analyses. Internal consistency measures have generated sound reliability for the SAM in both younger and older adults with a Cronbach's alpha equal to .63 and .82, respectively (Backs, da Silva, & Han, 2005).

Procedure

Participants completed this study online through Qualtrics Survey Software. Participants indicated their fanship towards the San Francisco Giants and were asked if

they were above the age of 18. If they met the aforementioned criteria, they were asked to complete the survey. Prior to beginning the study, participants signed and viewed an online consent form (see Appendix H). If they were willing to participate, were aged 18 years or above, and were fans of the San Francisco Giants, they were asked to click a button indicating that they wanted to continue. If they did not meet the inclusion criteria and/or did not wish to participate, they were instructed to close their browser window. After indicating their willingness to participate, participants viewed an instructions page, which notified subjects that they would be viewing a series of videos and answering a few questions following each video. At this juncture, participants were randomly assigned to either complete the Sport Spectator Identification Scale (SSIS) prior to viewing the antecedent videos or to complete the measure after watching the videos.

Participants were randomly assigned to view either the winning or losing video first. The winning antecedent video displayed a clip of the 8th and 9th innings of the clinching Game 5 along with the post-game celebration of the 2010 World Series win by the San Francisco Giants. The neutral antecedent video was a clip containing footage from the 2011 Hyundai Tournament of Champions at Kapalua, Hawaii of a professional golfer, Bubba Watson, driving and then putting on a hole. Lastly, the losing video showed the San Francisco Giants being no-hit (producing no offense, being shut-out, and scoring no runs in this case) by Homer Bailey of the Cincinnati Reds. Each video lasted approximately 2 minutes and descriptions of each video were displayed above the video thumbnail. Following the viewing of each video, participants answered the SAM. Participants then completed the SSES to measure feelings about themselves following the

video. Participants were then asked how they would like to continue the study. They were provided two choices, to either continue to see GRS (pictures of players, the stadium, team logo, and apparel as well as newspaper headlines) or to view general sports items. Participants then viewed a number of images related to their choice. Following their first choice, participants were then prompted again if they would like to view Giants images or general sports images. After their second choice, participants viewed the next video and the same series of events (i.e., SAM, SSES, choices) occurred following each of the other two videos.

After viewing of all the videos, participants completed a general demographic questionnaire (see Appendix I). Participants who were assigned to complete the SSIS following exposure to the conditions did so after the demographics questionnaire. Then, participants completed the BIRGing and CORFing Scales, modified to refer to the San Francisco Giants. Following this, participants completed the MSSC to assess the motives of these individuals for following the San Francisco Giants. Ultimately, participants were given the chance to provide their name and email address to be entered in a raffle to win two tickets to a Giants home game. Finally, participants were thanked for their participation in the study.

Results

Preliminary Tests

Team Identification. In the obtained sample, 85.3% of the participants were categorized as HI fans, while 14.7% were classified as MI fans. There was no presence of LI fans in this sample. Table 1 summarizes the descriptive statistics for team

identification. Since participants were randomly assigned to either complete the SSIS prior to or after going through the antecedent conditions, a one-way analysis of variance (ANOVA) was performed to determine if the order of presentation affected responses on this scale. This test did not yield any significant differences between those who completed the SSIS before ($M = 41.43$, $SD = 6.50$) or after ($M = 40.42$, $SD = 6.32$) being exposed to the conditions, $F(1, 66) = 0.383$, $p = .538$, $d = 0.16$. An additional one-way ANOVA was conducted to test whether or not the gender of participants played a role in team identification. The gender analysis did not yield significant results, as males ($M = 41.33$, $SD = 6.60$) and females ($M = 40.51$, $SD = 6.29$) did not differ on this measure, $F(1, 66) = 0.24$, $p = .63$, $d = 0.13$. Therefore, gender was not used as a factor in any subsequent analyses.

Table 1

Descriptive Statistics for Team Identification

Level of Team Identification	n	M	SD
Low	0	N/A	N/A
Moderate	10	30.50	4.98
High	58	42.53	2.37
Total	68	40.76	6.35

Basking in Reflected Glory and Cutting off Reflected Failure. An independent-samples *t*-test was conducted to compare the averaged scores on the BIRGing Scale between HI and MI fans. Levene's Test for Equality of Variances was

violated, so we corrected the degrees of freedom from 66 to 17. HI fans reported a

significantly higher likelihood of BIRGing following positive team performance than did

MI fans. Similarly, averaged scores on the CORFing Scale of both HI and MI fans were

analyzed using an independent-samples *t*-test. Levene's test revealed unequal variances,

so we adjusted the degrees of freedom from 66 to 27. Following negative team

performance, HI fans displayed a significantly lower likelihood of CORFing compared to

MI fans. Tables 2 and 3 illustrate *t*-test results for these scales. Additionally, Pearson's

correlation coefficients were conducted for each of these measures to test for a

relationship between team identification and the aforementioned fan behavior constructs.

BIRGing scores were strongly, positively significantly correlated with the team

identification scores such that higher scores on the BIRGing Scale were related to higher

levels of team identification, $r(66) = .52$, $p < .001$, two-tailed, $r^2 = .27$. CORFing was

moderately, negatively significantly correlated with team identification, indicating that

lower scores on the CORFing Scale were associated with higher team identification,

$r(66) = -.31$, $p = .011$, two-tailed, $r^2 = .10$.

Table 2

t-test Results for BIRGing Scale

Level of Team Identification	*M*	*SD*	*t*	*df*	*p*	*d*
Moderate	3.13	0.39	3.50	17	.003	1.01
High	3.64	0.60				

Note. Two-tailed test.

Table 3

t-test Results for CORFing Scale

Level of Team Identification	*M*	*SD*	*t*	*df*	*p*	*d*
Moderate	3.00	0.42	2.90	27	.007	0.73
High	2.47	0.94				

Note. Two-tailed test.

Motivation for Sports Consumption. The differences between HI and MI fans on the eight motives for sports consumption measured by the MSSC were examined using multiple one-way ANOVAs. Table 4 depicts the descriptive statistics for each motive. Results for each of the subscale comparisons revealed that HI fans were significantly more likely to hold stronger motives than were MI fans on the following factors: Achievement, Knowledge, Aesthetics, Physical Skills, and Social. Table 5 displays the statistical outcomes for these analyses. Pearson correlation coefficients were computed to test for the relationship between each motive on the MSSC and scores on the SSIS (see Table 6). Each factor, with the exception of Drama, was positively and significantly correlated to team identification scores, signaling that higher scores on each subscale of the MSSC were related to higher team identification.

Table 4

Descriptive Statistics for Motivation Scale for Sports Consumption

	Highly Identified		Moderately Identified	
Motive	*M*	*SD*	*M*	*SD*
Achievement	6.30	0.76	5.27	0.62
Knowledge	5.29	1.60	3.00	1.51
Aesthetics	6.21	0.98	5.30	1.35
Drama	5.76	1.11	5.27	0.83
Escape	5.88	1.17	5.23	0.79
Family	5.65	1.05	5.07	0.68
Physical Skills	6.49	0.59	5.57	0.28
Social	5.77	1.18	4.93	0.31

Table 5

ANOVA Summary Table for Motivation for Sports Consumption

Motive	*df*	*F*	*p*	*d*
Achievement	1, 66	16.09	< .001	1.48
Knowledge	1, 66	17.76	< .001	1.47
Aesthetics	1, 66	6.61	.012	0.77
Drama	1, 66	1.84	.180	0.50
Escape	1, 66	2.84	.097	0.65
Family	1, 66	2.84	.097	0.66
Physical Skills	1, 66	18.27	< .001	1.99
Social	1, 66	4.48	.038	0.97

Table 6

Correlations between Motives for Sports Consumption and Team Identification

Motive	Team Identification	r^2	p
Achievement	.650	.422	< .001
Knowledge	.714	.510	< .001
Aesthetics	.424	.180	< .001
Drama	.232	.054	.057
Escape	.322	.104	.007
Family	.356	.127	.003
Physical Skills	.479	.229	< .001
Social	.413	.170	< .001

Note. *df* = 66.

Hypothesis Testing

Choice. The percentage of choices for GRS during the behavioral measure were subjected to a two-factor mixed ANOVA with each antecedent condition (winning, losing, neutral) as the within-subjects factor and team identification group (HI and MI) as the between-subjects factor. Descriptive statistics for the response rate on GRS are displayed in Table 7. The ANOVA yielded a significant main effect for team identification such that, regardless of the antecedent videos, the HI fans chose the GRS significantly more often than did MI fans. Table 8 depicts a full summary of the two-factor mixed ANOVA and Figure 3 provides the interaction plot for this analysis. The two-factor mixed ANOVA also revealed an additional significant main effect for

antecedent condition, signaling that regardless of team identification level, the antecedent affected response rate on the behavioral task. The interaction plot shows that the two variables appeared to interact, although the interaction term did not quite reach significance, $F(2, 66) = 2.77$, $p = .066$. Nevertheless, the pattern in the data was consistent with the hypothesized model shown in Figure 1. Therefore, we investigated the interaction in more detail. To do so, we used independent-samples t-tests to compare HI and MI fans at the losing and neutral video conditions. At the losing condition, HI fans generally responded more than MI fans, but this outcome was not statistically significant, $t(10) = 1.39$, $p = .195$, two-tailed, $d = 0.57$. Following the neutral condition, HI and MI fans did not significantly differ in the mean percentage of choices, $t(10) = 1.46$, $p = .174$, two-tailed, $d = 0.56$ (Levene's Test for Homogeneity of Variances revealed unequal variances, so the degrees of freedom of the t test were adjusted from 66 to 10).

Table 7

Descriptive Statistics of Highly and Moderately Identified Fans for Behavioral Measure

	Highly Identified		Moderately Identified	
Antecedent	*M*	*SD*	*M*	*SD*
Winning	96.55	15.84	100	0.00
Neutral	96.55	15.84	85.00	24.15
Losing	95.69	16.97	80.00	34.96
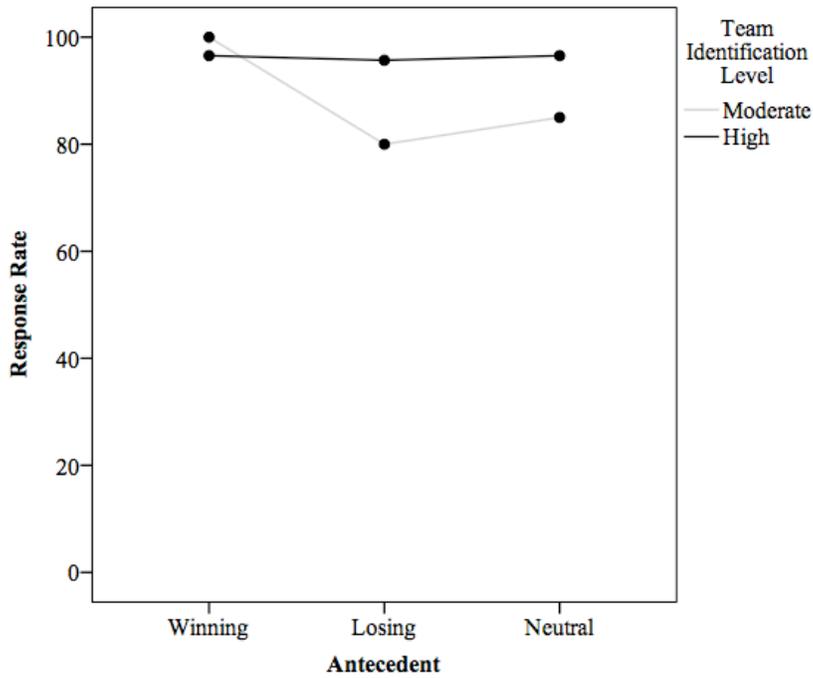
Figure 3

Effects of Antecedents and Team Identification on Response Rate

Table 8

Two-Factor Mixed ANOVA Results for Percentage of Choices for GRS

Source	F	df	p
Team Identification	5.27	1, 66	.025
Antecedent	3.17	2, 66	.045
Team Identification x Antecedent	2.77	2, 66	.066

Secondary Hypothesis on State Self-Esteem. Scores on the SSES were

subjected to a two-way mixed ANOVA comparing the total state self-esteem scores of

fans, with each antecedent condition (winning, losing, neutral) as the within-subjects

factor and team identification group (HI and MI) as the between-subjects factor.

Descriptive statistics for this measure are provided in Table 9. Mauchly's test indicated

that we violated sphericity, therefore the degrees of freedom were adjusted using the

Huynh-Feldt correction. As hypothesized, the overall state self-esteem of fans was

minimally affected following each antecedent. In addition, the results did not indicate any

interaction between team identification and state self-esteem. Cohen's effect size measure

($d = .05$) signaled that the effect of changes in self-esteem of MI fans following winning

and losing team performance was minimal. In contrast, HI fans displayed significant

changes in self-esteem between winning and losing team performance, $t(57) = 3.26$, $p =$

.002, two-tailed, $d = 0.43$. However, HI and MI fans did not significantly differ in self-

esteem following losing team performance, $F(1, 66) = 0.896$, $p = .347$. Inferential

statistics for the main analyses are depicted in Table 10.

Table 9

Descriptive Statistics for Self-Esteem Scale Following Each Antecedent

	Highly Identified		Moderately Identified	
Antecedent	*M*	*SD*	*M*	*SD*
Winning	56.10	9.06	55.50	9.90
Neutral	53.48	11.40	55.80	9.25
Losing	50.66	13.81	55.00	10.50

Table 10

Two-Factor ANOVA Summary Table for Self-Esteem Scale Following Each Antecedent

Source	F	df	p
Team Identification	0.363	1, 66	.549
Antecedent	1.52	2, 66	.225
Team Identification x Antecedent	1.05	2, 66	.346

General Feelings Assessment. A mixed two-way ANOVA was conducted to

reveal any differences on the SAM, with each factor on the measure (valence, arousal,

dominance) as the within-subjects variable and team identification group (HI and MI) as

the between-subjects variable. Tables 11 and 12 illustrate descriptive statistics for the

measure. Mauchly's Test of Sphericity was violated for valence and arousal, so we

adjusted the degrees of freedom using the Huynh-Feldt correction. The ANOVA revealed

a significant main effect for all factors of the SAM, yielding significant differences in

valence, arousal, and dominance. There was no significant interaction between team

identification and any of the factors following each antecedent. However, the interaction

between valence and team identification, $F(2, 66) = 2.27$, $p = .110$, as well as arousal and

team identification, $F(2, 66) = 1.99$, $p = .146$, appeared to be trending towards

significance, as displayed in Table 13 and Figures 4 and 5. Therefore, additional analyses

were conducted to examine this further. Bivariate correlations were conducted

associating team identification with each factor on the SAM following the winning and

losing antecedents. The correlations revealed a significant positive, moderate relationship

between team identification level and valence following the winning antecedent such that

higher scores of valence were related to higher team identification. In addition, a trend towards a significant negative relationship with valence and arousal following the losing antecedent was found. These results are displayed in Table 14. Further analyses provided that the effect of the changes following the winning and losing antecedents in valence, arousal, and dominance in HI fans were significant and large, as shown in Table 15. This result was also observed in MI fans, as displayed in Table 16.

Table 11

Descriptive Statistics for Self-Assessment Manikin (SAM) Factors Following Each

Antecedent for Highly Identified Fans

	Valence		Arousal		Dominance	
Antecedent	*M*	*SD*	*M*	*SD*	*M*	*SD*
Winning	4.79	0.41	4.53	0.63	3.72	1.18
Neutral	3.10	1.22	2.65	1.15	2.88	0.94
Losing	2.07	1.28	2.48	1.27	2.41	1.03

Table 12

Descriptive Statistics for Self-Assessment Manikin (SAM) Factors Following Each

Antecedent for Moderately Identified Fans

	Valence		Arousal		Dominance	
Antecedent	*M*	*SD*	*M*	*SD*	*M*	*SD*
Winning	4.50	0.71	4.20	0.42	3.80	0.79
Neutral	3.10	1.20	2.60	0.97	3.10	0.57
Losing	2.80	1.30	3.10	0.74	2.80	0.63

Table 13

Two-Factor ANOVA Summary Table for Self-Assessment Manikin (SAM) Following Each

Antecedent

Source	*F*	df	*p*
Antecedent Valence	41.96	2, 66	< .001
Antecedent Arousal	30.63	2, 66	< .001
Antecedent Dominance	12.27	2, 66	< .001
Team Identification (Antecedent Valence)	0.446	1, 66	.507
Team Identification (Antecedent Arousal)	0.140	1, 66	.709
Team Identification (Antecedent Dominance)	1.18	1, 66	.282
Team Identification x Antecedent Valence	2.27	2, 66	.110
Team Identification x Antecedent Arousal	1.99	2, 66	.146
Team Identification x Antecedent Dominance	0.213	2, 66	.809
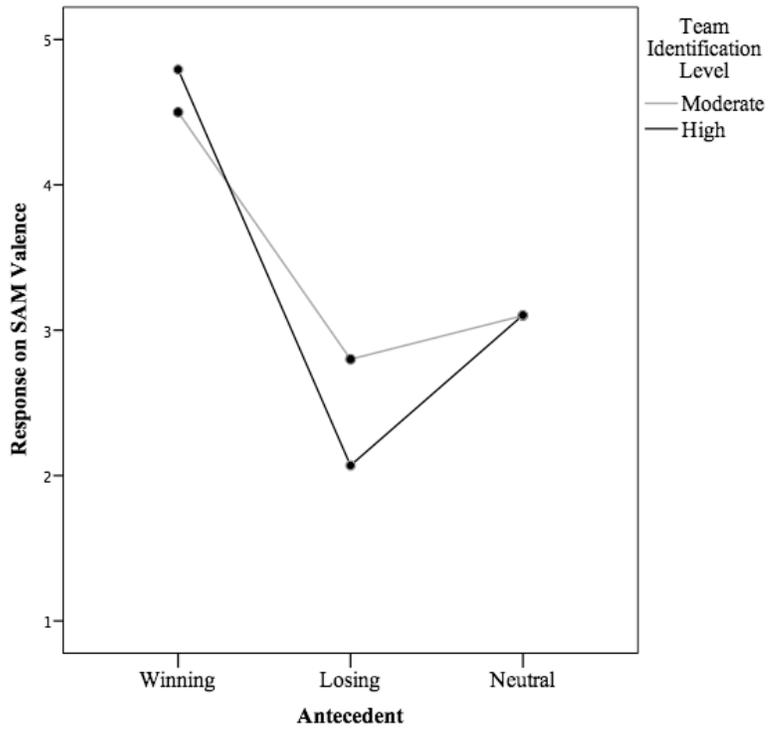
Figure 4

Effects of Antecedents on Valence for Highly and Moderately Identified Fans
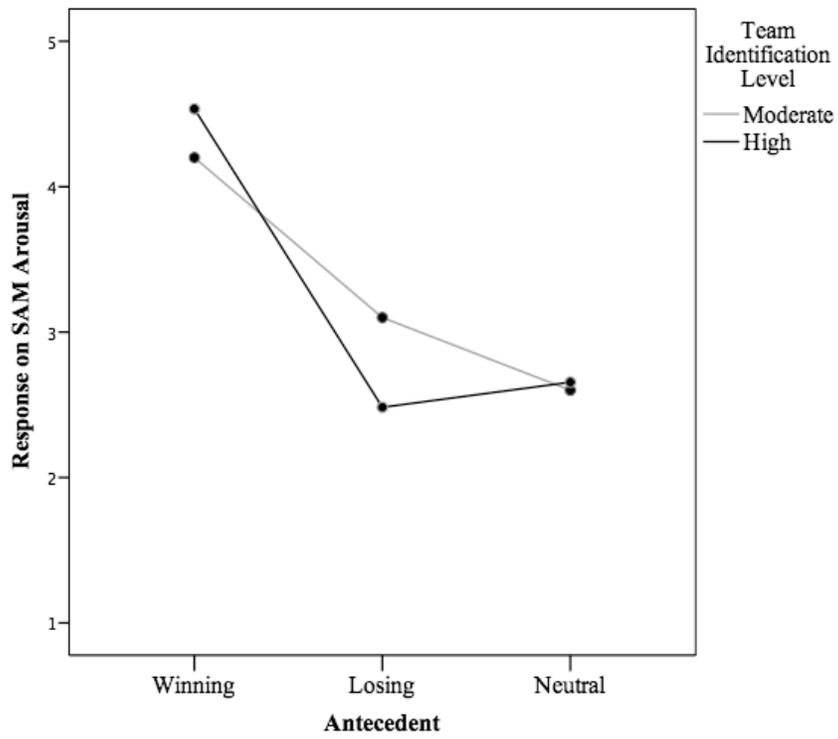
Figure 5

Effects of Antecedents on Arousal for Highly and Moderately Identified Fans

Table 14

Correlations between Self-Assessment Manikin (SAM) Factors and Team Identification following Winning and Losing Antecedents

Factor	Winning Antecedent	r^2	p	Losing Antecedent	r^2	p
Valence	.366	.134	.002	-.230	.053	.060
Arousal	.188	.035	.125	-.211	.044	.085
Dominance	-.028	.00078	.823	-.101	.010	.411

Note. *df* = 66

Table 15

Within-Group Comparisons and Effect Size Measurements for Highly Identified Fans on the Self-Assessment Manikin (SAM) following Winning and Losing Antecedents

Source	t	p	d
Valence	14.32	< .001	1.88
Arousal	10.73	< .001	1.41
Dominance	6.60	< .001	0.87

Note. Two-tailed test.

Table 16

Within-Group Comparisons and Effect Size Measurements for Moderately Identified

Fans on the Self-Assessment Manikin (SAM) following Winning and Losing Antecedents

Source	*t*	*p*	*d*
Valence	4.29	.002	1.36
Arousal	3.97	.003	1.25
Dominance	3.00	.015	0.95

Note. Two-tailed test.

Discussion

One purpose of this study was to apply behavior-analytic concepts, such as the Motivating Operations Concept (MOC), and models of consumer behavior, specifically the Behavioral Perspective Model (BPM) and Behavioral Ecology of Consumption (BEC), to the investigation of sports consumption behavior in a sample of fans of the San Francisco Giants. These behavioral theories, which have been previously applied to consumer behaviors other than sports consumption, were used to generate hypotheses regarding the behavior of fans in response to antecedent videos of the Giants winning and losing. We hypothesized that these videos would function as motivating operations (MOs) by altering the conditioned reinforcing effectiveness of team-related stimuli (TRS), as indicated by choices to access TRS following the videos. A second purpose was to integrate concepts from the team identification and sports consumption literatures (e.g., BIRGing, CORFing, BIRFing) with the aforementioned behavioral concepts. Specifically, we hypothesized that the level of team identification would moderate the motivational and emotional effects of the antecedent videos, and that highly identified (HI) fans would respond differently than would fans who did not self-report high levels of identification with the Giants (i.e., moderately identified (MI) and low identified (LI) fans). Although our sample did not contain LI fans, overall, we found general support for our hypotheses. In the following sections, we will describe our findings in more detail and discuss their implications as well as this study's limitations and strengths. We will then identify some directions for future research before stating our conclusions.

Findings

Preliminary testing of the data provided support for past research on fan behavior

concepts. Specifically, team identification by gender was not found to be significant,

which is consistent with the findings of prior studies (e.g., Cummins, Youngblood, &

Milford, 2011; Wann, Carlson, & Schrader, 1999). Thus, the team identification

constructs used in this study do not appear to differ across males and females measured in

our study. With respect to motivation for sports consumption, the HI fans consistently

reported higher levels of endorsement for many of the motives, with a few exceptions.

Specifically, HI fans held stronger levels of achievement, knowledge, aesthetics, physical

skills, as well as social motives. This finding is consistent with prior work on fan

motivation, which has suggested that HI fans tend to hold stronger motivation to follow

their identified team given the higher level of commitment (Trail & James, 2001). In

studying these motives, it is important to note the behavioral consequences as well as the

social aspects that revolve around how fans choose to follow their team. In the present

context, these motives may relate to sports stimuli in the form of accomplishment or

fulfillment reinforcers, as described by the BPM (Hantula & Wells, 2010). For instance,

following a team for achievement reasons provides sufficient informational

reinforcement that can provide appetitive consequences when such motives, as described

by Trail and James (2001), are satisfied. For example, fans who reported following their

team to see them win or play successfully will benefit from not only the pleasure and

enjoyment of seeing their team win, but will also gain appropriate social approval, from

being associated with the team's success, that can further motivate the fan to follow the team (DiClemente & Hantula, 2003a; Hantula & Wells, 2010).

Our results also yielded support for previous work on the concepts of BIRGing and CORFing in that more highly identified fans were more likely to report BIRGing and less likely to report CORFing (Dhurup, 2012; Wann & Branscombe, 1990). In our study, BIRGing and CORFing were measured in two ways: responses on the BIRGing and CORFing Scales and choices for TRS after viewing the winning and losing videos. With respect to BIRGing, both groups of fans (HI and MI) made similar percentages of choices to the Giants-related stimuli after viewing the winning video (with the MI fans choosing TRS slightly more often on average by about 0.20 standard deviations). In contrast, the HI group reported significantly higher levels of BIRGing on the self-report measure (by one standard deviation) than did the MI fans. Thus, there seems to be a discrepancy between the self-report and behavioral measures. Reasons for this discrepancy remain unknown. Assuming that this finding is not just due to random chance, differences in direct behavioral and self-reported measures of sports consumption are worthy of further investigation. With regard to CORFing, HI fans were more likely to choose (by about one standard deviation) TRS after the losing video than were MI fans. The results of the self-report measure of CORFing were similar to those of the behavioral measure, seeing as MI fans reported that they were significantly more likely to engage in CORFing (by about 0.70 standard deviations) than were the HI fans. Thus, these two measures of CORFing were consistent.

Seeing as the videos influenced the percentage of choices for TRS, it is reasonable to describe these videos as MOs that changed the incentive (or conditioned reinforcing) value of TRS. The effects on responses appeared to be moderated by the level of team identification, which reduced the motivational effects of the videos for the HI fans, who almost exclusively chose to view the TRS regardless of the videos they viewed, as predicted. These findings are consistent with previous work on BIRGing, as both MI and HI fans responded similarly following a winning team performance, which has been reported in prior literature (e.g., Wann & Branscombe, 1990). Furthermore, HI fans not only reported a greater inclination to support their team in the presence of losing performance than did MI fans, they also displayed these tendencies during the behavioral choice task. These data support previous literature on CORFing as well as on BIRFing, which has suggested that HI fans have a lower likelihood of CORFing in the presence of a losing team performance than less highly identified fans (Kwon et al., 2008; Wann & Branscombe, 1990). Rather, these HI fans engaged in BIRFing (Aiken et al., 2005; Campbell et al., 2004), as reflected on the choice task by consistently choosing to view TRS despite watching a losing video. Although our interaction terms did not quite reach significance at $\alpha = .05$, we attribute this to the relatively small sample size for the MI group and the large discrepancy between the sizes of the two groups, which can reduce statistical power (Rosnow, Rosenthal, & Rubin, 2000). Despite this, however, there was a general trend toward significance in the interaction terms for three of our primary dependent variables (percentages of choices for TRS, SAM valence, and SAM arousal). Given the effect size measures for the two groups at the losing condition, which yielded a

moderate effect with respect to practical significance, we believe that these results are of interest and deserve further attention.

In terms of the BEC, the choice behavior observed in this study falls in the category of pleasure in that they were performed "for fun" (DiClemente & Hantula, 2003a). With regards to the BPM, the ensuing outcomes produced by the perpetuated response to the TRS generated informational consequences given the same pleasure that followed. Because both HI and MI fans tended to BIRG in a similar fashion, both these fans may have simply responded to the TRS for hedonic, or as previously stated pleasurable, purposes. However, the losing antecedent may have reduced the incentive value of TRS for the MI fans given that they worked to avoid as opposed to come in contact with the TRS following the losing video. In contrast, HI fans preserved their response effort by BIRFing in the presence of the losing video (i.e., the losing antecedent did not influence their choices). Thus, the TRS were pleasurable outcomes regardless of the antecedent. From a behavioral ecological standpoint, these responses may have been attributed to collection and preservation behaviors, reminiscent of an evolutionary-biology theory. In the manner of the BEC, HI fans may have continued to respond to the TRS following the losing antecedent as a means to maximize the return on their behavior (DiClemente & Hantula, 2003a), in this case directed towards consuming TRS. BIRFing may have resembled a foraging behavior in this situation and acted as an extreme preference for the ensuing consequences (i.e., selection of TRS), as previously described by Rajala and Hantula (2000).

Regarding the effects of the videos on state self-esteem, we found no significant differences (and relatively small standardized effect sizes) on this measure between HI and MI fans following the three antecedent videos. However, the HI fans did show the largest decrease (about 0.40 standard deviations) in state self-esteem following the losing video compared to the MI fans. In addition, the HI fans showed a similar sized drop in self-esteem after watching the losing video compared to after watching the winning video. These data are consistent with previous work that has shown that HI fans tend to experience larger changes in self-esteem between winning and losing team performances (Bizman & Yinon, 2002). In terms of the BPM, if the TRS functioned as informational reinforcers, we would expect them to be more strongly associated with self-esteem, as these types of reinforcers are founded upon social status (e.g., in-group signals to other fans of the same team), self-worth, and the self-concept (e.g., being a fan of a given team is part of "who they are"). Compared to state self-esteem, the videos produced larger and more consistent effects on general emotional responses. Both HI and MI fans experienced more potent changes in valence (pleasure), arousal, and dominance between the winning and losing antecedents. These findings indicate that the antecedent videos had multifaceted effects on behavior, mood, and self-esteem.

Implications of the Findings

By and large, the inferences that may be drawn from these findings are both supportive, regarding the consistency of the findings compared to previous research, as well as innovative, regarding the novelty of the current study. To begin with, findings from the preliminary tests in this study provided support for previous work on team

identification, fan behavior, as well as fan motivation. Considering this, prior research provides a solid foundation by which to make such assumptions about fans, wherein HI fans tend to hold stronger allegiances to their team (Wann & Branscombe, 1990), increased likelihoods to BIRG (Wann & Branscombe, 1990) and BIRF (Aiken et al., 2005; Campbell et al., 2004), and more powerful motives to follow a team (Trail & James, 2001). Although low identified fans were not represented in this study, it appears that such fans with moderate and high identification may report similar tendencies in fan behavior concerning positive team performance (i.e., BIRGing), but not negative team performance, in line with prior research (e.g., Kwon et al., 2008; Wann & Branscombe, 1990).

Traditional work on BIRGing (Cialdini et al., 1976) and similar research related to the social identity theory (Lee, 1985; Tajfel & Turner, 1979) may describe the MI and HI fans' inclinations to seek out TRS as a means to be associated with successful others and to further enhance their self-image. These successful outcomes, displayed during the winning antecedent, may have produced effects in which fans sought to bolster their social identities in order to appear more successful in the eyes of others. However, evaluative surveillances by observers, in the manner of Cialdini et al. (1976) and Lee (1985), were not conducted in the current study and may not allow for definitive conclusions about self-image management techniques by fans to be made.

As displayed by their perpetuated response to the TRS, HI fans were willing to seek out their team even in the presence of failure, which may have been attributed to preserving their loyalty to the team (Branscombe & Wann, 1991). Rather than enhancing

their public self-image, the HI fans may have continually responded to the TRS in the presence of failure to maintain their internal self-image, or self-concept, of being strong supporters of their identified team. In addition, our findings on self-esteem provided support for changes in how HI fans felt about themselves (Bizman & Yinon, 2002; Hirt et al., 1992). Prior research has noted that team performance has a more influential effect on self-esteem compared to mood. However, in the present study, we found that fans experienced larger mood, or affective, changes following the various team performances compared to changes in self-esteem. We attribute this to the notion that fans' feelings about themselves may be separate from how they feel following team performance, which we predicted would bring about momentary changes to their emotional states. Although HI fans experienced these significant changes in self-esteem, we may explain this with the classic literature on fans and identity. Simply, HI fans may have displayed these stronger changes in self-esteem since being a fan may be a larger part of "who they are" compared to MI fans. Specifically, the HI fans may have been more concerned with how they present themselves in the social environment, in the manner of self-image and social identity tactics (Lee, 1985; Tajfel & Turner, 1979).

Considering that we not only employed self-report measures in assessing fan behavior, but also drew from behavioral literature in our experiment, the current study provides a novel perspective by which to view these findings. As previously explained, this study provides support for the usefulness of behavioral theories (i.e., BPM, BEC, and MOC) in a sports consumption context. The current study also delivers an innovative approach to viewing fan behavior from a behaviorist perspective through the use of such

models. From a BEC perspective, the seeking out of the TRS by fans are examples of foraging behaviors, given that responses were based upon the benefit, or consequence, of the outcome that followed (DiClemente & Hantula, 2003a). As theorized, the videos acted as MOs, at least for the MI fans in that they influenced these fans' choices for the TRS. For the MI fans, the videos appeared to function as transitive conditioned motivating operations (CMO-Ts) since they influenced the value of conditioned reinforcers (Laraway et al., 2014; Michael, 1993).

We speculate that the winning video functioned as a transitive conditioned establishing operation (CEO-T; Langthorne & McGill, 2009) that increased the incentive value of the TRS on the behavioral choice task by providing a great sense of social accomplishment or pleasure. Alternatively, the losing video could have functioned as a transitive conditioned abolishing operation (CAO-T; Langthorne & McGill, 2009) that decreased the incentive value of TRS. In everyday terms, this explanation suggests that watching the losing video merely made the TRS less appealing and less interesting, but not noxious. An alternative explanation is the losing video functioned as a CEO-T that increased the aversive value of TRS, resulting in avoidance behavior (choosing the non-Giants stimuli).

In two-choice procedures, as in the one utilized in this study, the shift from one option to another could be the result of a decrease in the reinforcing value of that option or an increase in the aversiveness of that option. Both possibilities would be reflected in a decrease in choices for that option. To determine the mechanism by which the losing video shifted choice from one option to another, additional tests or measures would be

necessary. The simplest measure would be to ask participants how they felt about the TRS after the losing video. In terms of behavioral tests, a different test of reinforcing efficacy would reveal if the losing video made the TRS less appealing without necessarily making them intolerable. One such test is the progressive-ratio (PR) schedule, which requires an increasing number of responses for each delivery of the reinforcing stimulus (e.g., Roane, Lerman, & Vorndran, 2001). For example, a PR 2 schedule would require two responses for the first reinforcer delivery, and each succeeding reinforcer would require an additional two responses. More appetitive stimuli would maintain higher levels of responding, whereas less appetitive stimuli would maintain lower levels. If the TRS became aversive, the individual may respond for a single delivery, but once the aversive stimulus was experienced, responding would cease. To determine if the TRS became aversive after watching the losing video, an escape procedure could be used in which the TRS would occur and responses would remove them (e.g., Navarro & Fantino, 2005). If participants actively worked to make the TRS "go away," this would provide evidence that the losing video made the TRS aversive. Because we did not employ these types of follow-up tests or measures, we cannot confidently state the mechanism by which the losing video decreased choices for the TRS in MI fans.

MI fans displayed a greater sensitivity to the antecedents seeing as they were more prone to CORFing following a negative outcome (i.e., the losing antecedent). However, HI fans showed less sensitivity to the antecedents in that their preference behaviors did not differ after the winning or losing videos. Thus, these findings implicate the important role played by team identification in the behavior of these fans and the

promise of using attitudinal measures along with direct measures of behavior in studying sports consumption. These findings may bridge the gap between the behavioral analysis and social psychological and personality constructs. As a result, the interdisciplinary methods used in the present study have provided additional support for constructs used in the team identification literature by using direct measures of behavior observed immediately following manipulations of sporting events. To be specific, we found direct behavioral evidence for self-reported fan behavioral tendencies, such as BIRGing, CORFing, and BIRFing. These denoted that HI fans tended to engage in BIRFing tactics more than MI fans, who alternatively engaged in more CORFing following negative team performance. Of course, additional studies must further examine the relationships among behavioral and self-reported measures in other contexts, such as in different sports, which we will discuss later.

With regards to the secondary hypothesis, which postulated that team performance would have minimal effects on how fans felt about themselves, fan self-esteem was not as strongly affected by the videos as were our other measures of emotional, or affective, responses. It is possible that self-esteem may play a limited role in the constellation of responses that fans have to their team's performances. Previous investigations have found that HI fans may view themselves as part of their team and may thereby be more negatively affected, emotionally and behaviorally, by poor team performance given the ensuing diminishments in esteem, attitudinal support, and games attended (Murrell & Dietz, 1992). The current study did not encounter such potent findings following analyses. Results from this study conceded adequate support for our

secondary hypothesis, denoting that fan self-esteem may simply exist as fan affect, wherein momentary team performance can bring about changes to a fan's mood. In this study, it was found that both MI and HI fans tend to generally experience changes toward higher levels of pleasure, arousal, and dominance between positive and negative team performance. This outcome was quite pronounced given the effect sizes that resulted, signifying that both HI and MI experience these marked changes much more powerfully compared to the average person. As a result, team performance, alone, may not be sufficient enough to disturb how one feels about themselves. An alternative explanation would posit a notion similar to our secondary hypothesis in that team performance may simply generate more affective-based outcomes on the individual. However, the effects of team performance with the addition of different factors, such as opposing fans or direct attacks on the individual, wherein fans respond to similar measures of state self-esteem, may be promising to observe.

Generally speaking, the overarching implications of our findings involve the uncovering of simply how team performance may influence fans on the whole. Given that they are not direct players in team performance, fans may not be capable of experiencing such drastic changes in how they feel about themselves following various team outcomes. However, these experiences with team performance may take the form of affective changes in that a person may go through several affect-based reactions, those being pleasure, arousal, and dominance, as found in this study. Nevertheless, further studies must investigate whether or not this is the expressed tendency of fans in not only a baseball environment, but also in other sports.

Limitations

Naturally, in any novel approach to a topic, there will be a number of limitations, and this study is no exception. One obvious limitation concerns the external validity of our results. Because this study was conducted online, fans who do not have regular access to a computer or who have low levels of digital literacy might not have participated. In addition, fans who were not students at San José State University or visitors at Craigslist did not have the chance to participate. It is not clear to what extent our participants differ from those who were excluded for various reasons, so we can only generalize with confidence to Giants fans who share similar characteristics with our participants.

For practical reasons, we focused on fans of one team in one sport (i.e., fans of the San Francisco Giants baseball team). Future studies should investigate whether these findings can be replicated across teams and sports. Assuming that fans of other teams and sports respond similarly to team performance, these results should be applicable to fans of teams other than the Giants. In most sports, fans' reactions to their team winning and losing should be similar in nature. Positive team performance in any sport involves dominance by one team whether that is offensively, through scoring points, or defensively, by limiting the other team's points. In contrast, negative team performance involves just the opposite, where a team may be dominated offensively and defensively. The effects produced by this study in fans of baseball may in fact be relevant in fans of other sports simply by the universal nature of team performance. As a result, positive and negative team performance in any sport may be sufficient enough to produce the observed effects.

Another limitation of this study involves the size and the proportions of participants in the obtained sample. As reflected by the calculated p values, a number of the findings may have required more participants, particularly within the MI group of fans. Specifically, the obtained sample contained over 70% more HI than MI fans, so there was a disproportionate number of HI fans. In addition, the MI group only had 10 participants. This small sample size, along with the large discrepancy in the group proportions, reduced our statistical power. As a result, making confident statements about the effects of our independent variable are difficult. However, researchers can use the effect sizes we found to guide their studies. They may decide, for example, that the relatively small values for r^2 we found with respect to the relationship between team identification and dominance on the SAM in the winning and losing video conditions may not be worth pursuing compared to the relatively large values of Cohen's d we found on the SAM valence measure between the winning and losing videos for HI fans.

An additional limitation of this study, due to our restricted sample, is that LI fans were not represented. As a result, this sample did not have an adequate representation of the various levels of team identification that exist in the actual population. However, we did attempt to capture the full range of team identification by using different recruiting methods (i.e., through university courses, the introductory psychology research pool, and Craigslist). It is possible that the effort required to complete the study was too great for LI fans compared to the incentives provided (course credit and/or a chance to win two tickets to a Giants' home game). It is also possible that our recruitment instructions (e.g., "Are you a Giants fan?") discouraged LI fans from participating, as they may not self-

identify as Giants fans even if they may watch a few games. In future studies, it may be advisable to increase the number of recruiting methods beyond university courses and Craigslist, make the task less effortful and/or the incentives more powerful (and more probable), use different language in the recruitment instructions, and so on.

Regardless of the lack of LI fans (and large number of HI fans), this study provides some evidence for the construct validity of the Sport Spectator Identification Scale (SSIS) in that LI fans were not drawn to participate even with the added incentive of the potential to win free Giants tickets. Indeed, it appears that HI fans self-selected themselves into the study as a means to obtain the tickets. This is not surprising, as past literature has shown that HI fans have a greater tendency to want to be involved with their team (Wann & Branscombe, 1993). As a result, these fans appeared to be more motivated to participate in this study by the chance to win the tickets. Additionally, the locality of this study may have affected the representation of fans, seeing as this experiment was conducted in the Santa Clara Valley/South Bay Area where there exists a great dominance of Giants fans. In fact, a recent Facebook survey of Giants fans reported that 86% of residents of San José identify with the team (Kiefer, 2013). This statistic alone may have skewed the data in favor of more HI and MI fans.

Furthermore, factors surrounding the San Francisco Giants themselves may have played a role in the disparity in fans and possibly influenced the responses of our participants. First and foremost, the San Francisco Giants are a unique team due to their recent history of utter failure and unprecedented success. In the past four years, the Giants won the World Series in 2010 and 2012 but missed the playoffs the following

seasons in 2011and 2013 (Baseball Reference, 2014). Given the distinctive pattern of

seasonal outcomes, fans of this team may have unique expectations as a result of the

performances during the presented four-year span. As a case in point, prior to the start of

this study, the Giants were projected to be weak contenders in the National League, their

division, and the MLB because they had not made the playoffs the year before.

Specifically, major sports sites power ranked the San Francisco Giants as the 15th best

team in baseball prior to the start of the season, with a number of injury concerns going

into the season (Grossman, 2014). However, in actuality, the Giants led their division for

most of the data collection period (MLB Advanced Media, 2014). At times, the team

even led the MLB in wins and was power ranked as the best team in the majors

(ESPN.com, 2014). In fact, the San Francisco Giants recently went on to win the 2014

World Series (Berg, 2014). Thus, actual team performance may have produced, what we

term, a *seasonality effect*, in which fans were more concerned with the real-time

performance of the team as opposed to performance in the antecedent videos, which

involved historical variables, those being past events and previous team performances.

Consequently, participants may have more strongly identified with the team due to the

current excellent team performance, in a type of "bandwagon effect," given that some

fans tend to "jump on the bandwagon" only when the team is a contender for success

(Burger & Walters, 2003). This superior performance may have heightened identification

in marginally, weakly identified Giants fans as well as borderline MI fans, further

contributing to the discrepancy of fans in our sample. Accordingly, future studies may

look to conduct experiments at various times to provide support for this seasonality

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effect, testing participants level of team identification prior to, during, and after the season as a means to observe for an enhancement or reduction in team identification attributable to team performance.

Strengths

Despite its limitations, this study had several strengths. First, our sample was diverse in terms of its age range. Although many of our participants were college students, we also collected data from older individuals. Most of these individuals were recruited through Craigslist and may have provided a better representation of MI and HI fans in the population. However, it must be noted that older fans tend to hold stronger allegiances to their teams as a function of the time spent following the team (Campbell et al., 2004).

Another strength of this study involved the manipulation of the antecedent videos and the direct measures of fan behavior. Studies that rely on purely correlational relationships among (often retrospective) self-report measures, although interesting and valuable, cannot provide the same kind of information as a study using experimental methods and direct measures of behavior. That said, the simultaneous use of self-report and behavioral measures enhanced the present study by providing information on other dimensions of fan behavior beyond the choice task. The manipulation of the antecedent videos avoids some of the problems of using naturalistic sporting events, in which the researcher cannot control the outcome, although we clearly see the value of such naturalistic studies.

The primary strength of the study was the novel mixture of methods and integration of theoretical concepts. To our knowledge, previous research has not used this type of integrative approach to sport fan behavior that combines behavioral and cognitive/personality/attitudinal models. Although they have been applied to consumer behavior, the BPM, BEC, and MOC have not been applied to sports consumption before this study. Prior studies on consumer behavior have not examined the immediate effects of depictions of sports performances on fans' choices to seek out and consume TRS. Rather than attempting to study sports consumption from a traditional perspective or studying consumer behavior using solely behavioral models, we incorporated the personality, cognitive, and attitudinal measures of sports consumption and team identification with the behavioral analysis of consumer behavior. This was done as a means to broaden our observation of sports consumption behavior and provide novel outlooks into the behaviors in fans.

The integration of these concepts from different theoretical perspectives may not only provide a more meaningful and thoroughgoing analyses, but may also have other benefits. For example, the mingling of alternative perspectives may help researchers generate new ideas for their studies. Considering different theoretical models may also help develop stronger ecologically valid studies. In the real world, behavior does not occur in a vacuum and is affected by many factors, which includes a person's attitudes, feelings, learning history, and the environmental context in which the behavior occurs. By arranging for sports fans to make choices following video clips of sporting events, we were able to emulate the natural environment in which such online sports consumption

would normally occur. Although the TRS used in this study were not completely identical to what sports fans would normally seek out following a game, the choice behavior we studied is similar to the sports consumption behavior that fans would perform online. For example, following a win, fans may go online and search for stories that recap the game and/or watch video clips of highlights. We hope that the current study has provided researchers with a useful model for studying online sports consumption.

Future Directions and Concluding Points

In addition to the recommendations we made earlier, future studies should attempt to replicate these findings in more diverse samples of sports fans, including those of different MLB teams, sports (e.g., basketball, football, soccer, hockey) and levels (e.g., high school, college, minor leagues, major leagues). Furthermore, future research may investigate how the stakes of the games at different levels may affect how fans may respond to team performance (e.g., comparing the effects of college football team performance to the effects of team performance in professional football). In addition, the stakes of the antecedents themselves may be considered. Given that the current study used antecedents with differing stakes (i.e., a postseason game which won the World Series and a regular season game lost in a historic fashion via a no-hitter), research may benefit from attempting to employ antecedents with equivalent stakes. Although the current study was able to produce its' intended effects with the antecedents, using prior depictions of equivalent success and failure may be more promising. Nevertheless, future research must consider using more relevant and present events surrounding the team, as older depictions of failure or even success may not produce desired outcomes. In other

words, delving into the history of a team's success or failure in the use of an antecedent may be overridden by the possibility of the seasonality effect, wherein real-time performance may be more influential on fans. However, as stated before, these effects must be tested before conclusive assumptions can be made. Future studies may also examine the seasonality effect on team identification, sports consumption, and other consumer behaviors of sports fans by testing fans before, during, and after the season. Such a study may be able to reveal if fans respond differently to depictions of team performances at different points of the year. It would be interesting to see the sports consumption behavior of fans as it ebbs and flows across the year and how fans may respond to older antecedents across time.

We suggest that consumer behavior and sports consumption researchers expand the models and theoretical perspectives on which they base their studies. Doing so would allow researchers to approach the subject matter from different viewpoints, which may yield unique insights and increase the number of potential variables to manipulate and measure. As we have shown, the combination of the construct of team identification with the functions of environmental variables described by the MOC led to a novel approach of the study of online sports consumption. Our approach to online sports consumption may apply to the purchasing behavior of fans, given the notion of antecedent events. These events may be able to influence the eventual purchase of products based upon team performance. For example, teams who reap the benefit of regular season success, with regards to wins, may be able to capitalize on the consumption of team-related paraphernalia through the use of antecedents in online purchase. Depictions of successful

team performance may lead to an increase in sports apparel sales for the team, given that winning and success, in general, is a desirable state.

The results of this study may also generalize to groups not related to sports, such as political parties, various organizations, companies, and so on. Depending on the performance of the group or organization, group members or affiliated individuals may display various forms of group behavior, such as support or distancing, in the presence of positive or negative business, political, or fiscal performance by the group. In this sense, group members may exhibit BIRGing, CORFing, or BIRFing behaviors guided by the level of identification or involvement that said members may hold with the group. It may be promising to take an interdisciplinary approach in studying these concepts by incorporating techniques found in areas such as marketing or consumer research. These studies may be able to apply findings and methods from this study to uncover motivational variables that influence group-related behaviors.

Overall, the current study provides a novel perspective to view sports fans as not only consumers, but also as members of groups who are affected by the performance of their teams. Despite the absence of LI fans, this study provides strong implications for the behavioral tendencies of MI and HI fans. Generally speaking, online sports consumption can be related to the fiscal contributions of sports fans, given that fans generate immense revenue for the companies involved. For instance, in relation to the current sample of baseball fans, in 2013, 24.5 million fans purchased clothing with logos of Major League Baseball teams alone (Statista, 2013). This figure does not include the purchase of related items with logos, such as baseballs, bats, flags, or banners. This large number of

purchases of such sports paraphernalia is most likely made by MI and HI fans as a means to display support for their team through clothing. Consequently, teams may seek to target the MI and HI fan populations for the consumption of paraphernalia using depictions of victory in advertisements and commercials in order to attract stronger identified fans. One challenge for teams is to attract LI fans and perhaps even convert them into MI or HI fans. The methods and concepts employed in this study might be useful for teams' marketing departments to investigate techniques for increasing team identification, particularly for teams that do not have a recent history of winning.

In addition to the financial implications of our findings for sports teams, our study also provides inferences for human behavior on the whole, given the application of multiple theories to better understand such areas of behavior. Not only does this study reveal variables that relate to sports consumption, it also demonstrates the importance of a learning history, as measured by our self-report questionnaires, in the study of consumer behavior. This study attempted to bridge gaps in the sports consumption literature and provide a unique perspective to studying fan behavior. Through the integration of both behavioral and sports consumption concepts and methods, we hope the present study spurs additional investigations that will take an interdisciplinary, multi-method approach to studying consumer and group behavior in various contexts. Such studies may be able to uncover more about the behavior of sports fans as well as the behaviors of any person who identifies himself or herself with a group or organization.

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Appendix A

Antecedent Videos

Video Thumbnail	Description	Duration	Antecedent Condition
	The 8th and 9th inning followed by post game celebration of the San Francisco Giants win at the 2010 World Series	01:45	Winning
	Bubba Watson, a golfer, goes driver-driver-putt for eagle at Kapalua (2011)	02:08	Neutral
	San Francisco Giants No-Hit by Homer Bailey during a 3-0 loss to the Cincinnati Reds on July 2, 2013	02:25	Losing

Modified Sport Spectator Identification Scale (SSIS; Wann & Branscombe, 1993)

1. How important to YOU is it that the San Francisco Giants wins?

1	2	3	4	5	6	7
Not at all	A Little	Slightly	Neutral	Moderately	Very	Extremely
important	Important	Important		Important	Important	Important

2. How strongly do YOU see YOURSELF as a fan of the San Francisco Giants?

1	2	3	4	5	6	7
Not at all	Not a fan	Not much	Neutral	Somewhat a	A fan	Very much
a fan		a fan		fan		a fan

3. How strongly do your FRIENDS see YOU as a fan of the San Francisco Giants?

1	2	3	4	5	6	7
Not at all	Not a fan	Not much	Neutral	Somewhat a	A fan	Very much
a fan		a fan		fan		a fan

4. During the season, how closely do you follow the San Francisco Giants via ANY of

    the following: (a) in person or on television, (b) on the radio, (c) television news, (d)

    through applications on your smartphone, tablet, or computer, (e) online sports site or

    blog?

1	2	3	4	5	6	7
Never	Rarely	Sometimes	Often	Very Often	Almost Every Day	Every Day

5. How important is being a fan of the San Francisco Giants to YOU?

1	2	3	4	5	6	7
Not at all important	A Little Important	Slightly Important	Neutral	Moderately Important	Very Important	Extremely Important

6. How much do YOU dislike the San Francisco Giants' greatest rivals?

1	2	3	4	5	6	7
Like Extremely	Like Very Much	Like Slightly	Neither Like nor Dislike	Dislike Slightly	Dislike Very Much	Dislike Extremely

7. How often do YOU display the San Francisco Giants' name or logo at your place of

   work, where you live, in your car, on your cell phone, on your laptop, or on your

   clothing?

1	2	3	4	5	6	7
Never	Rarely	Sometimes	Often	Very Often	Almost Every Day	Every Day

Appendix C

Modified Basking in Reflected Glory (BIRGing) Scale (Spinda, 2011)

Please indicate the extent to which you agree with these statements.

(1= Strongly Disagree/ 5= Strongly Agree)

After the San Francisco Giants win…

1. I am more likely to read stories online to savor the Giants win.

2. I am more likely to purposely read stories in the newspaper about the Giants performance.

3. I am more likely to display the Giants logo, emblem, or insignia where I live.

4. I am more likely to spend time with my family or close others.

5. I am more likely to display the Giants logo, emblem, or insignia where I work or go to school.

6. I am more likely to purposely watch highlights of the Giants after the game.

7. I usually wear clothing or jerseys that display the Giants team logo, emblem, or insignia.

8. I am more likely to "talk trash" to fans of other teams who have been defeated by the Giants.

9. I am more likely to "talk trash" to fans of other teams whose teams are not doing as well as the Giants.

Appendix D

Modified Cutting off Reflected Failure (CORFing) Scale (Spinda, 2011)

Please indicate the extent to which you agree with these statements.

(1= Strongly Disagree/ 5= Strongly Agree)

After the San Francisco Giants lose…

1. I am not as likely to display the Giants logo, emblem, or insignia where I work or go to school.

2. I am not as likely to display the Giants logo, emblem, or insignia where I live.

3. I usually won't wear clothing or jerseys that display the Giants team logo, emblem, or insignia.

4. I generally avoid articles in the newspaper about the Giants performance.

5. I am not as likely to read stories online so I can forget about the Giants performance.

6. I usually choose not to watch highlights of the Giants after the game.

7. I am not as likely to chat online with other fans about the game.

8. I am not as likely to post messages online to show support for the Giants.

9. I generally don't "talk trash" to fans of other teams who have defeated the Giants.

10. I generally don't "talk trash" to fats of other teams whose teams are doing better than the Giants.

Appendix E

Modified Motivation Scale for Sports Consumption (MSSC; Trail and James, 2001)

Please indicate the extent to which you agree with these statements.

(1= Strongly Disagree/ 7= Strongly Agree)

Achievement

1. I feel like I have won when the San Francisco Giants win.

2. I feel a personal sense of achievement when the San Francisco Giants do well.

3. I feel proud when the San Francisco Giants play well.

Knowledge

1. I regularly track the statistics of specific players on the San Francisco Giants.

2. I usually know the team's win/loss record.

3. I read the box scores and team statistics regularly.

Aesthetics

1. I appreciate the beauty inherent in the game.

2. There is a certain natural beauty to the game.

3. I enjoy the gracefulness associated with the game.

Drama

1. I enjoy the drama of a "one run" game.

2. I prefer "close" game rather than a "one-sided" game.

3. The game is more enjoyable to me when the outcome is not decided until the very end.

Escape

1. Games represent an escape for me from my day-to-day activities.

2. Games are a great change of pace from what I regularly do.

3. I look forward to the games because they are something different to do in the summer.

Family

1. I like going to games with my family.

2. I like going to games with my spouse/girlfriend/boyfriend/partner.

3. I like going to games with my children.

Physical skills

1. The physical skills of the players or something I appreciate.

2. Watching a well-executed athletic performance is something I enjoy.

3. I enjoy a skillful performance by the San Francisco Giants.

Social

1. Interacting with other fans is a very important part of being at games.

2. I like to talk to other people sitting near me during the game.

3. Games are great opportunities to socialize with other people.

Physical Attraction **(Omitted)**

1. I enjoy watching players who are physically attractive.

2. The main reason that I watch is because I find the players attractive.

3. An individual player's "sex appeal" is a big reason why I watch.

Appendix F

Modified State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991)

For each question, choose the number that best describes how the last video made you

feel about yourself. The best answer is what you feel is true of yourself RIGHT

NOW.

(1= Not at all like me/ 5= Extremely true of me right now)

1. I feel confident about my abilities.

2. I am worried about whether I am regarded as a success or failure.

3. I feel satisfied with the way my body looks now.

4. I feel frustrated or rattled about my performance.

5. I feel that I am having trouble understanding things that I read.

6. I feel that others respect and admire me.

7. I am dissatisfied with my weight.

8. I feel self-conscious.

9. I feel as smart as others.

10. I feel displeased with myself.

11. I feel good about myself.

12. I am pleased with my appearance right now.

13. I am worried about what other people think of me.

14. I feel confident that I understand things.

15. I feel inferior to others at this moment.

16. I feel unattractive.

17. I feel concerned about the impression I am making.

18. I feel that I have less ability right now than others.

19. I feel like I'm not doing well.

20. I am worried about looking foolish.

Scoring:

Items 2, 4, 5, 7, 8, 10, 13, 15, 16, 17, 18, 19, 20 are reverse-scored.

The subcomponents are scored as follows:

Performance self-esteem items: 1, 4, 5, 9, 14, 18, 19

Social self-esteem items: 2, 8, 10, 13, 15, 17, 20
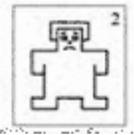
Appearance self-esteem items **(Omitted)**: 3, 6, 7, 11, 12, 16

Appendix G

Self-Assessment Manikin (SAM; Lang, 1985)

Valence

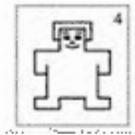| Unhappy
Annoyed
Unsatisfied
Melancholic
Despairing
Bored | | | | | | Happy
Pleased
Satisfied
Contented
Hopeful
Relaxed |
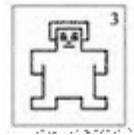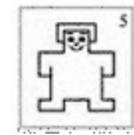
1   **2**   **3**   **4**   **5**

Arousal

Relaxed
Calm
Sluggish
Dull
Sleepy
Unaroused
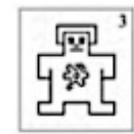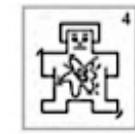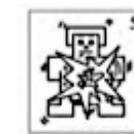
Stimulated
Excited
Frenzied
Jittery
Wideawake
Aroused

1   **2**   **3**   **4**   **5**

Dominance

Controlled
Influenced
Cared for
Awed
Submissive
Guided
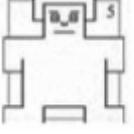
Controlling
Influential
In control
Important
Dominant
Autonomous

1   **2**   **3**   **4**   **5**

Appendix H

Agreement to Participate in Research

Responsible Investigator(s): Sean Pradhan, San José State Graduate Student

Title of Protocol: The ABC's of Being a Fan: An Operant Analysis of Sports

Consumption Behavior

1. You have been asked to participate in a research study investigating San Francisco

Giants fan behavior.

2. You will be asked to watch three videos, view some sports-related photos, and answer

questions about yourself, including demographic information (e.g., age, gender), your

level of interest in the San Francisco Giants, and your thoughts and emotions as they

relate to the San Francisco Giants.

3. No foreseeable risks are anticipated. The risks involved in this study are no greater

than those encountered in daily life.

4. If you are Psyc 1 student, you will be provided with 0.5 research credits towards your

required Psyc 1 research participation. However, PARTIAL completion of this study will

result in reduced credit, proportional to your participation (e.g., if you only complete 1/2

of the study, you will only receive half credit). If you are enrolled in a different

Psychology class, your instructor may provide you with course credit (or extra credit). If

you do not wish to participate, you will be provided an alternative assignment to obtain

credit. If you complete this entire study and provide your best answers, you will be

entered into a raffle for two tickets to a weekend San Francisco Giants game.

5. Although the results of this study may be published, no information that could identify you will be included. All data will be stored electronically on encrypted computers and storage devices. Only the principal investigator and their advisor will have access to the data.

6. Questions about this research may be addressed to Sean Pradhan at sean.k.pradhan@gmail.com. Complaints about the research may be presented to Ronald Rogers, Ph.D., Chair, Department of Psychology, at (408) 924-5652. Questions about a research subject's rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President, Graduate Studies and Research, at (408) 924-2427.

7. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose not to participate in the study.

8. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effect on your relations with San José State University, although this will affect the amount of course credit you earn and your chance to win the Giants tickets.

10. At the time that you sign this consent form, you may print a copy of it for your records, electronically signed and dated by the investigator.

Thank you for participating in this study.

By clicking on the "Let's get started" button and starting the study, you are indicating that you agree to participate in this study.

Appendix I

Demographic Information

1. How old are you?

    a. _____

2. What is your gender?

    a. Male

    b. Female

    c. Other _____

3. What year of school are you in?

    a. 1st year (Freshman)

    b. 2nd year (Sophomore)

    c. 3rd year (Junior)

    d. 4th year (Senior)

    e. Other _____

4. What is your ethnicity?

    a. African American

    b. Asian

    c. Caucasian

    d. Hispanic

    e. Native American

    f. Pacific Islander

    g. Other _____

5. Where is your residence?

    a. _____

6. During the regular season, about what percentage of Giants games do you typically watch or attend any part of a game?

    a. Less than 10% (16 or fewer games)

    b. 10-50% (about 16-81 games)

    c. More than 50% (about 81-162 games)

7. How many Giants jerseys do you own?

    a. 3 or fewer

    b. 3 to 5

    c. More than 5

8. Name as many of the current Giants roster as you can.

    a. _____

9. How many years have you been a Giants fan?

    a. 3 or fewer

    b. 3 to 5

    c. More than 5

10. How often will you visit social media websites (Twitter, Facebook, Instagram, blogs) to talk about the San Francisco Giants?

    a. Never

    b. Rarely

    c. Sometimes

    d. Most of the time

    e. Always

11. How often will you use personal media (texts, emails, phone calls) to talk about the San Francisco Giants?

    a. Never

    b. Rarely

    c. Sometimes

    d. Most of the time

    e. Always

12. How often do you spend per day reading/watching Giants-related stories or videos (on PC, tablet, phone, laptop)?

    a. 3 or fewer hours

    b. 3 to 5 hours

    c. More than 5 hours

13. How often do you spend per day watching Giants-related stories or videos on TV?

    a. 3 or fewer hours

    b. 3 to 5 hours

    c. More than 5 hours